eyeheight

LE-2n

Multimode SDHDI Legaliser in a desktop chassis with software control application.

user manual

User Manual Versions

Versions	Changes	Date	Build
1.0	First Version for LE-2 in nanobox chassis	5/6/2009	V113
1.1	Improved Driver installation clarity	05/08/09	V113

LE-2 Product History

Date	Product Version	SD S/W Version	HD S/W Version	MD S/W Version	SD F/W Version	HD F/W Version	MD F/W Version	Reason
16/06/2008	V100	S100	S101	S100	F200		F200	
03/07/2008	V101	S100	S101	S101	F200		F200	BF
02/09/2008	V102	S100	S101	S101	F200		F200	BF
22/09/2008	V103	S100	S101	S101	F200		F210	BF
14/10/2008	V104	S103	S103	S103	F360	F351	F230	IF
11/11/2008	V105	S104	S103	S103	F360	F351	F230	
12/11/2008	V106							
21/11/2008	V107	S105	S104	S104	F360	F351	F230	
09/12/2008	V108	S106	S105	S105	F360	F351	F230	
16/01/2009	V109	S106	S105	S105	F370	F360	F240	CB
09/02/2009	V110	S107	S106	S106	F370	F360	F240	
03/03/2009	V111	S108	S107	S107	F370	F360	F240	
30/03/2009	V112	S109	S108	S108	F370	F360	F240	
10/04/2009	V113	S109	S109	S109	F370	F360	F240	

V100 First Production Release
V101 Improves speed of change from SD to HD. Timout problem cured. Also now has licensing. No further use for S
V102 I-Bus bug fix. Upgrade to Kernal 1.08
V103 FIRMWARE - Phase shift put into input clk in DCM and CPLD clk polarities changed
V104 Added 2nd core so that Comp and RGB can be done simulataneously, added ring suppression, INVERT SD
V105 Corrected vitc_line1 & vitc_line2 banking issue in LE-2SD
V106 V105 Recompiled with K1.9 F1.02
V107 Alt menu set added for HD PAL/NTSC colour spaces, Video sensing adjusted for menu 0, compiled with K1.1C
V108 Operation of pedestal corrected and last used preset or user memory recalled when video standard changes
V109 FIRMWARE - Speeded up time for valid video out by defaulting cores to bypass
V110 Rewrote last used preset etc. to make it more efficient
V111 Corrected Yclip on EBU presets (Ring Suppression) SD and HD
V112 Updated Std_Detection.inc and improved video standard changes
V113 Modified to 4 sets of menus so that Colour Space can be saved and recalled using user memories

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I. System Overview

This manual describes the function of the LE-2n which is an LE-2S or LE-2M legaliser processing card connected within a nanobox desktop chassis.

I.I The nanobox chassis

The nanobox chassis has been designed to provide a low cost way of operating a single legaliser card for stand-alone use without the complex and more expensive infrastructure of an etherbox 1RU rack mount chassis (FB-9E) and 1RU operational panel (FB-9). The LE-2n legaliser card is operated by a java software application for PC or MAC. Connection is via a supplied USB lead.

Figure 1-1 Figure 1 1 Nanobox chassis with worldwide PSU and USB Cable

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1.2 The LE-2n Product

This processing card come in two different styles:

1. The LE-2nM, Multidefinition unit, capable of SD and HD operation.
2. The LE-2nS, Standard definition unit, capable of SD operation only.

Apart from the operational standards, the units have the same features and are both covered within this manual. Within this manual it can be assumed that references to the LE-2n refer to both styles of processing card. When there are differences it will be pointed out specifically.

The LE-2n is a full-featured multi-mode legaliser system. The main features of the LE-2n legalisers are as follows:

- Provides Legalisation of the SDI Input signal with full 10 bit processing throughout.
- Composite, YUV and RGB colour spaces
- Two Independent SDI outputs for "Legalise" and user controllable "Legal/Indicate".
- Adjustable Clipping Levels.
- Adjustable soft clipping knee levels. (RGB and YUV).
- Highly effective overshoot and undershoot suppression on the luminance signal.
- Integral luma and chroma gain, black level adjustment & hue rotation.
- EBU 2003 standard legalisation settings.
- 7.5 IRE or 0 IRE Pedestal.
- 6 User Memories.
- Unique severity display mode on monitoring output.
- 2 off On-board GPI's for memory recall.
- Compatible with etherbox GPI/Tallies.
- FULLY software and firmware updatable using Flash technology.
- A mechanical relay bypass option is available.

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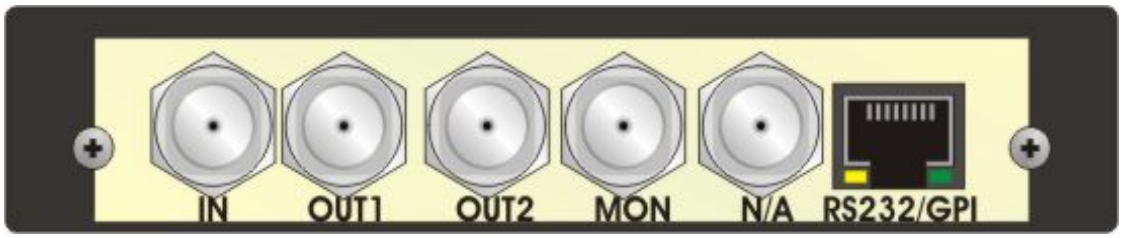

Figure 1-2 LE-2n rear.

1-3 Front of nanobox.

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2 Setting up the LE-2n

2.1 Associated equipment.

The LE-2n can operate in two modes. Each of these modes is determined by a factory set internal link option. The modes are:

1. Operation using a soft panel on a PC or a Mac computer.
2. Operation using an eyeheight FP-9 Flexipanel.

Respectively the associated equipment required for operation of the above modes are:

1. A PC or Mac to operate the softpanel. (User provided) and a USB cable (Supplied).
2. An FP-9 control panel with an RR-9E rear enclosure (Available from eyeheight) and a standard ethernet cable cable with RJ-45 connectors (user supplied) is also required to connect the FP-9 panel to the LE-2n.

   The LE-2n will always be shipped in mode 1 (Soft Panel) unless the customer specifies otherwise.

DO NOT CONNECT THE SUPPLIED USB/RJ45 CABLE TO THE FRONT RJ45 LABELLED "PANEL" THIS COULD RESULT IN DAMAGE TO THE UNIT.

You cannot operate the softpanel and an FP-9E Flexipanel at the same time.

2.2 Connecting the LE-2n using a soft panel.

This is the way the LE-2n is normally shipped. The data and power connections are shown in the diagram below. After power up the Status light should turn from red to green indicating that it is operational in soft panel mode. If the status light goes orange the system was factory configured for operation with an FP-9 1RU panel. In the unlikely event that the status light stays red then the system has found an error and it will need returning to the factory.

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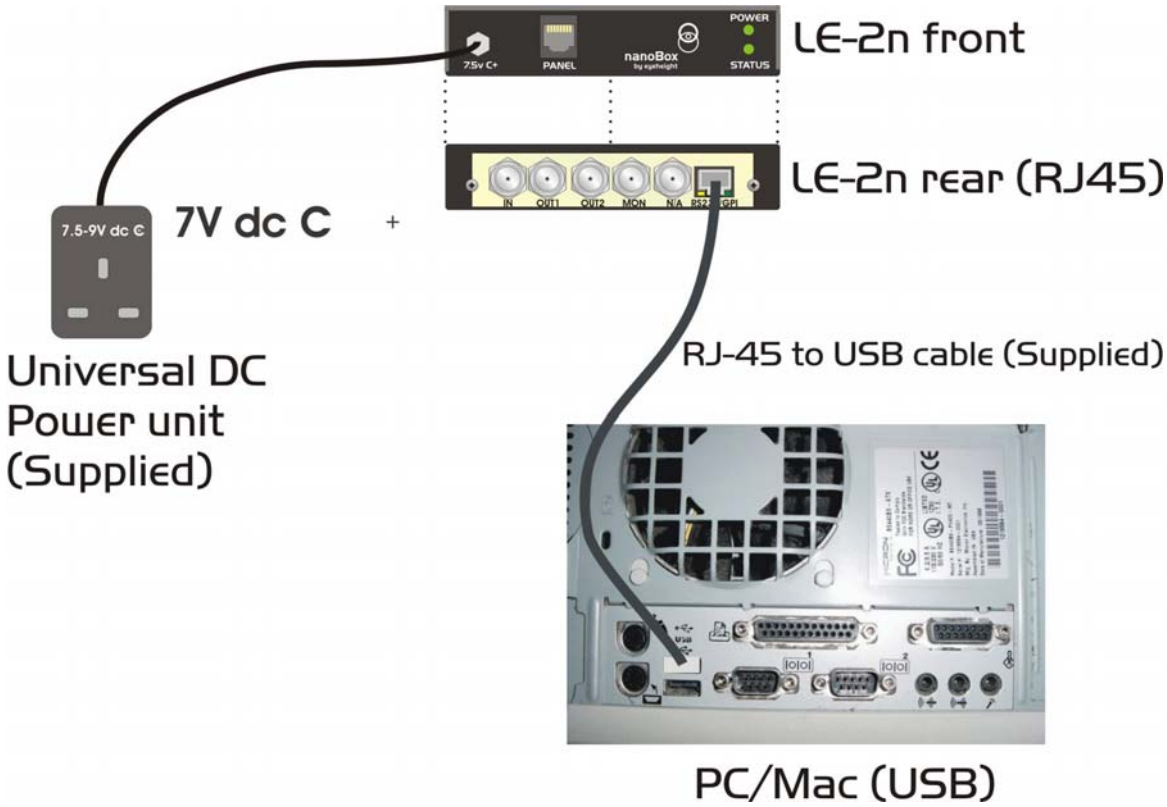

2-1 Diagram showing the power and data connections.

THE LE-2n UNIT MUST BE PLACED IN A COOL ENVIROMENT (ROOM TEMPERATURE IS REASONABLE) WITH ADAQUATE VENTELATION. DO NOT COVER OR USE IN AN UNVENTELATED RESTRICTED SPACE.

2.2.1 Installing the software.

The software is provided on a supplied eyeheight USB flash drive
The softPanel application requires no installation itself. Simply run “softpanel.jar”

2.2.2 System Requirements

This software requires Java Runtime Environment version 1.5.0 (Java 5) or later.
This is compatible with Windows and MAC machines.
See www.java.com for the latest version of Java.

USB port. (USB to serial cable is supplied).
Installation

The softPanel application requires no installation itself.

However, it requires three platforms to be in place already:

- Java Runtime Environment (Java 5 or later).
- RxTx serial driver for Java (see below).
- Driver for USB to Serial cable.

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2.2.3 Java

The latest version of the Java Runtime Environment is available from www.java.com .

You will need at least version 1.5.0, also known as Java 5.

2.2.4 RxTx Serial Drivers

Since Sun has removed support for serial drivers in Java, we use the open source RxTx serial drivers.

This means that any client computer will require the files for RxTx.

We use version 2.1-7-r2, which is freely available from www.rxtx.org , and should be provided with the softPanel application, in a directory called “RxTx”.

Inside the “RxTx” directory, you will find 2 files; one for each supported OS.

You should copy the file for your OS into the Installation Location shown below:

OS	File	Installation Location
Windows	rxtxSerial.dll	C:\Windows
Mac OS	librxtxSerial.jnilib	/Library/Java/Extensions

Users of Mac OS X may receive "PortInUseException" errors reported by the RxTx drivers when attempting to open a COM Port.

In this case, you should ensure that your user account is granted permission to use the COM Port, as described below.

2.2.5 Granting a user permission to open a COM Port in Mac OS X

N.B. In Mac OS X 10.5 (Leopard) and above the sudo commands below will only work if the administrative user account has a non-empty password. (This means that you must create a user account with a password to allow installation. This is something that has recently been enforced by apple.)

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Create a /var/lock directory that is owned by the user you wish to run your application:

Using the Terminal, type the following:

- `sudo mkdir /var/lock`
- `sudo chown [username]:uucp /var/lock`
- `sudo chmod ug+rw /var/lock`

- ```
  ls -al /var/lock/
  total 0

  drwxrwxr-x 3 [username] _uucp 102 14 Oct 10:05 .

  drwxr-xr-x 26 root wheel 884 14 Oct 10:05 ..
  ```

2.2.6 USB to Serial Drivers

Drivers for the USB cable are available for Windows and Mac from the manufacturer's website, at http://www.ftdichip.com/Drivers/VCP.htm.

Once you have successfully installed the USB to Serial cable, you will need to confirm what port name / number it is listed as.

You can do this in Windows as follows:

1. Access the System properties, via:

   [Control Panel > System]
   Or
   [My Computer > Right-Click > Properties]

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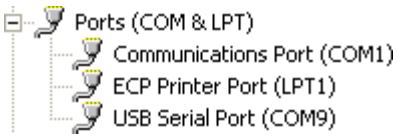
  ```

2. Select the *Hardware* tab.

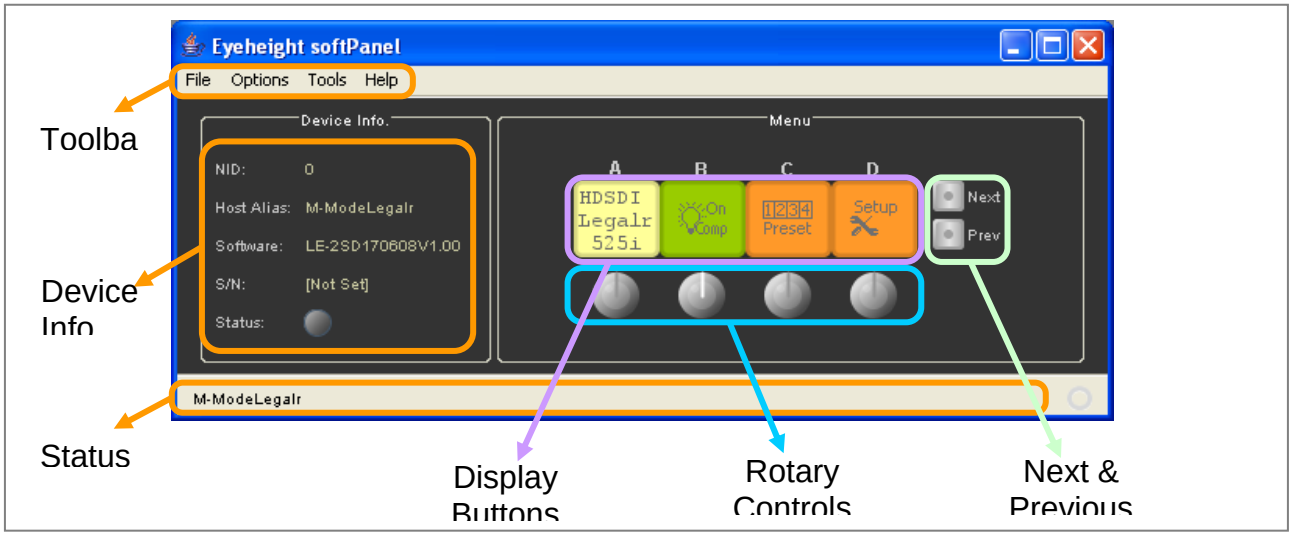
3. Click the *Device Manager* button.

4. Expand the *Ports* node:



5. You will see the name of the COM port surrounded by parenthesise, listed as *USB Serial Port*.
   The example above shows COM9.

2.3 Screen Layout



2.3.1 Toolbar

- File
  - Exit
- Options
  - COM Port
    Tick the name of the COM Port that you want to use.
    The application will enumerate this list of your COM Ports when it starts up.
  - Baud Rate
    This is the speed of the serial comms. You will need to use 115200.
  - Large Displays
    If you find the Display Buttons too small, then you can tick this option to increase the size at the expense of the resolution.

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    - Multi-Device Mode
      If you are using the softPanel with a nanoBox (NB-9), you will not need to set this option.
      This option should be set if you are using the softPanel with an etherBox (FB-9E) to control more than one product, as you would a standard panel (FP-9). For more info, see **Error! Reference source not found.**.
- Tools
    - Refresh
      The softPanel will request a menu refresh from the active device. It will also refresh the data displayed in the Device Info box.
    - Send Message
      The messaging system is used to send text messages from the panel to a product.
      For more info, see **Error! Reference source not found.**.
    - Un-acquire product
      Like a standard Eyeheight panel (e.g., FP-9), the softPanel "acquires" control of a product, and retains a lock to prevent other panels from controlling the same device.
      To release that lock, and allow other panels to control the device, use this tool.
    - Search for products…
      Scans the Eyeheight system for available products, and adds them to the Devices list.
      For more info, see **Error! Reference source not found.**.

- Help
    - About…
      Shows version number, release, and development information.

2.3.2 Device Info.

Shows information about the device that you are controlling, to identify it and display status information.

- NID
  The Network ID is an address on the Eyeheight I-Bus communication network.
- Host Alias
  Sometimes known as the username, this is a user definable identification, saved to the product. For more info about setting the Host Alias, see **Error! Reference source not found.**.
- Software
  The version of software that the device is running.
  By convention, this is commonly formed from [product name] + [release date] + [version number].
- S/N
  Serial Number of the device. This uniquely identifies the product.

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- Status
  This control will display according to the status of the device.
  The display colour is based on a traffic light system of green, amber, and red.
  Hover the mouse over the control to see an information tooltip.

2.3.3 Status Bar

Generic GUI component, for conveying information to the user.

In normal use, the status bar will display the Host Alias of the device, but it is also used to display error messages and status updates.

2.3.4 Display Buttons

The four buttons, labelled A, B, C, and D act both as separate menu displays, and as larger combined displays, depending on context.

They also act as buttons; performing an action when clicked. This action will depend on what is displayed on the button at the time.

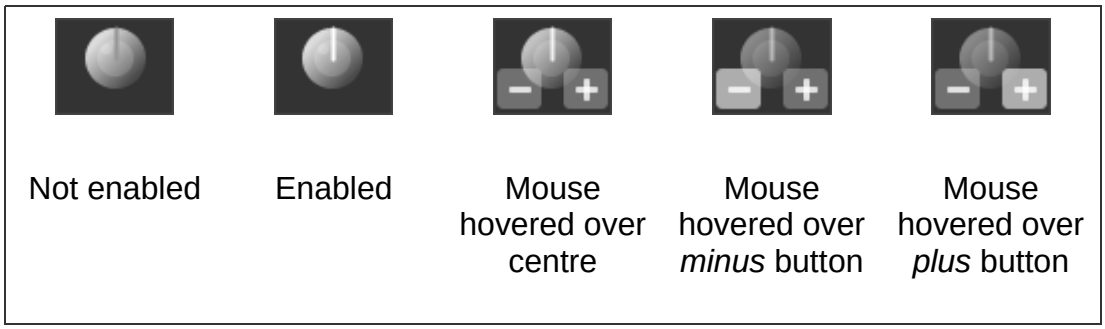
For more info, see Menu Navigation.

2.3.5 Rotary Controls

In normal use, the four rotary controls correspond directly with the four Display Buttons; each to the display above it.

When a rotary control is not enabled, its marker will be grey.

When it is in use, the marker will be white, and it will respond to the mouse pointer, when hovered over it:



Click the *plus* button to rotate clockwise (increment).

Click the *minus* button to rotate anti-clockwise (decrement).

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The centre button usually restores a menu to its default value.

2.3.6 Next & Previous Buttons

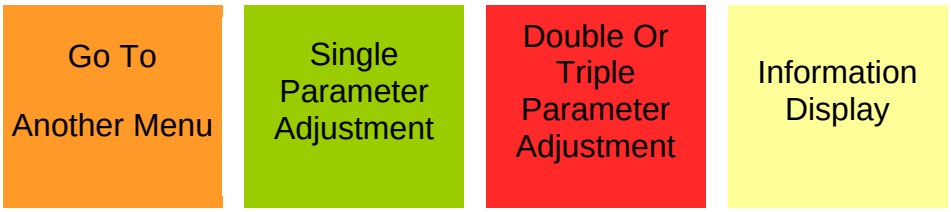
These are aids to navigating the devices “flat” menu systems.

They flash while further menus are available.

2.4 Menu Navigation

Menus are colour coded to show how to interact with them.

See below:



2.4.1 Go To Another Menu

A common menu item, used for navigating tree-structured menus.

2.4.2 Single Parameter Adjustment

A green menu is one in which there is one adjustable parameter.

There are two ways to adjust the parameter in a green menu:

- Press the green Display Button.
  This will increment the value in that window.
  This is most frequently done when the menu parameter is Textural for example switching a parameter between ON and OFF. In this case a button press is most natural.
- Use the Rotary Controls to adjust the parameter in the respective Display Button.
  The direction and speed of rotation enable numeric values to be set easily.

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2.4.3 Double Or Triple Parameter Adjustment

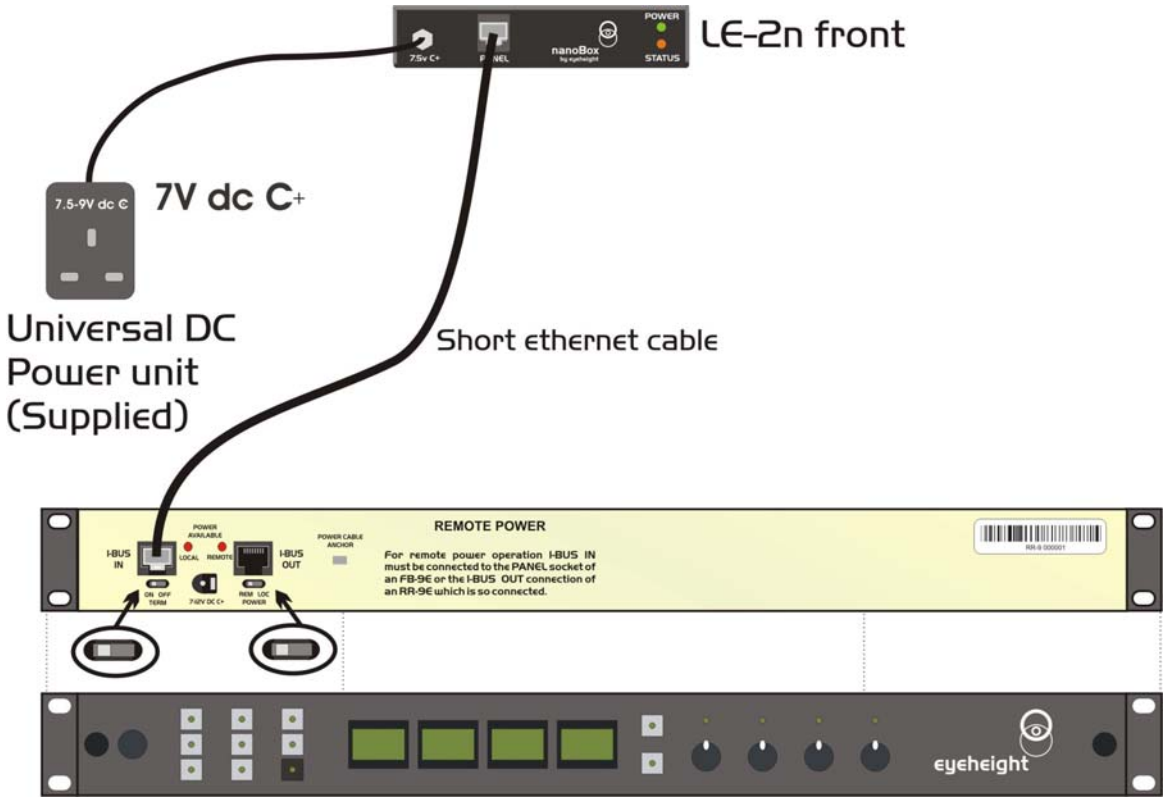
A red menu is one in which there are two or three adjustable parameters. In this case it is necessary to first select the menu by pressing the red Display Button. When the red button is pressed it will turn green, and either two or three of the Rotary Controls will flash, indicating that the respective Rotary Control will operate a corresponding parameter.

2.4.4 Information Display

A yellow menu is one in which only information is displayed.

2.5 Connecting the LE-2n using an FP-9.

The LE-2n is normally shipped for operation with a soft panel. If you have *specifically asked* for the system to operate with a flexipanel then it will be shipped this way. The control and power connections are shown in the diagram below. After power up the Status light should turn from red to orange indicating that it is operational in FP-9 panel mode. If the status light goes green then the system was factory configured for operation with a soft panel. In the unlikely event that the status light stays red then the system has found an error and it will need returning to the factory.



2-2 LE-2n Power and control connection using an FP-9.

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The Ethernet cable must be <2M long or you may experience fading of the FP-9 display due to voltage drop from the power supply in the LE-2n. If you wish to mount the FP-9 panel very remotely (up to 150 Metres) then set the power switch on the RR-9 (Rear box for the FP-9) to “LOC” (Local) and use the power supply supplied with the RR-9 to power the panel.

2.5.1 Flexipanel controls.

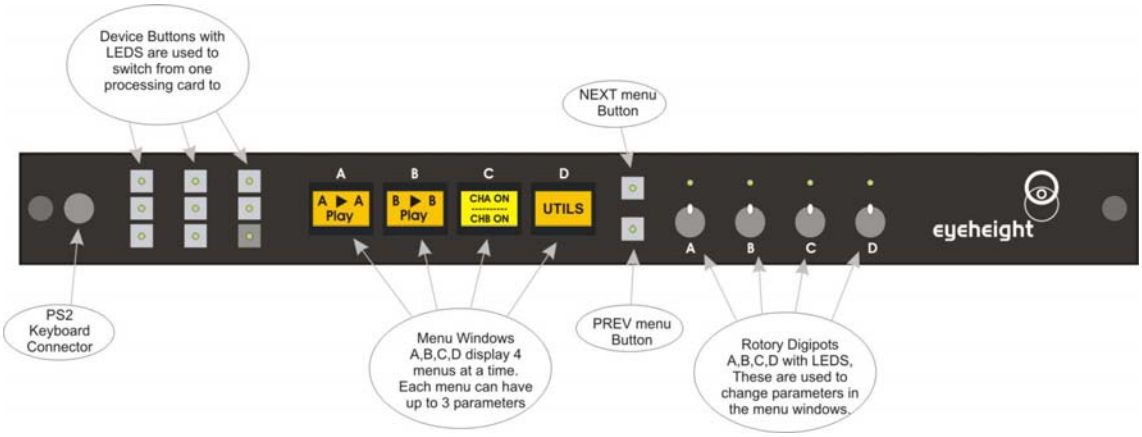
Device Buttons with LEDS are used to switch from one processing card to
NEXT menu Button
A
B
C
D
A ▶ A Play
B ▶ B Play
CHA ON
CHB ON
UTILS
eyeheight
PS2 Keyboard Connector
Menu Windows A,B,C,D display 4 menus at a time. Each menu can have up to 3 parameters
PREV menu Button
Rotory Digipots A,B,C,D with LEDS, These are used to change parameters in the menu windows.

Figure 2-3 Flexipanel (FP-9) controls.

2.5.2 Device Buttons.

There are 8 grey device buttons. These switch between the currently selected processing cards installed in the etherbox. It is also possible to select cards in another chassis if the I-Bus is connected to the other chassis.

2.5.3 Menu Navigation.

There are two ways to navigate from menu to menu.

1. Using the NEXT and PREV buttons. These are for “Flat” menu structures. The NEXT and PREV LEDS will flash while further menus are available.
2. Using a GOTO ANOTHER MENU LCD button (as below coloured orange). This is more common and will take you straight to a relevant set of menus. Examples are the Play and UTILS menu’s shown on Figure 8.

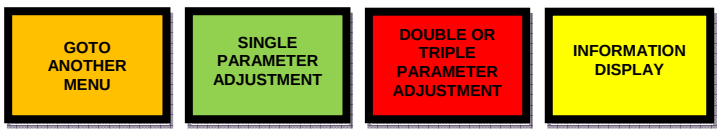

Figure 2-4 Types of menus showing their characteristic colours

2.5.4 Parameter adjustment of a green menu.

A green menu is one in which there is only one adjustable parameter. There are two ways to adjust the parameter in a green menu.

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1. Press the green LCD button. This will increment the value in that window. This is most frequently done when the menu parameter is Textural for example switching a parameter between ON and OFF. In this case a button press is most natural.
2. Use the Rotary digipot (A,B,C or D) to adjust the parameter in the respective LCD window (A,B,C or D). The direction and speed of rotation enable numeric values to be set easily.

2.5.5 Parameter adjustment of a red menu

A red menu is one in which there is two or three adjustable parameters. In this case it is necessary to first select the menu by pressing the red button. When the red button is pressed it will turn green and either two or three of the rotary digipot LEDS will flash indicating that the respective rotary digipot will operate the respective parameter.

2.5.6 Information display

A Yellow menu (Which on most panels does look a light orange!) is one in which only information is displayed. An example of this is the software version display.

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3 Connecting Video to the LE-2n

This unit requires HD-SDI or SDI digital video connections to the BNC connectors. Connections on the LE-2n product

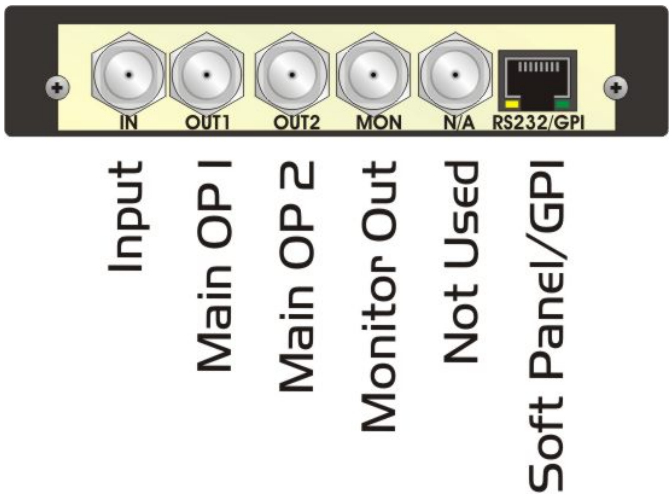

Figure 3-1 LE-2n connections

The main video connections to the LE-2n are shown above. The Main OP1 and Main OP2 are the main legaliser outputs. They are functionally identical to each other. The Indicate output can go to a preview monitor which will indicate the illegal parts of the picture by colouring and/or flashing the illegal areas. Two GPI's can be used to recall user memory 1,and 2 respectively.

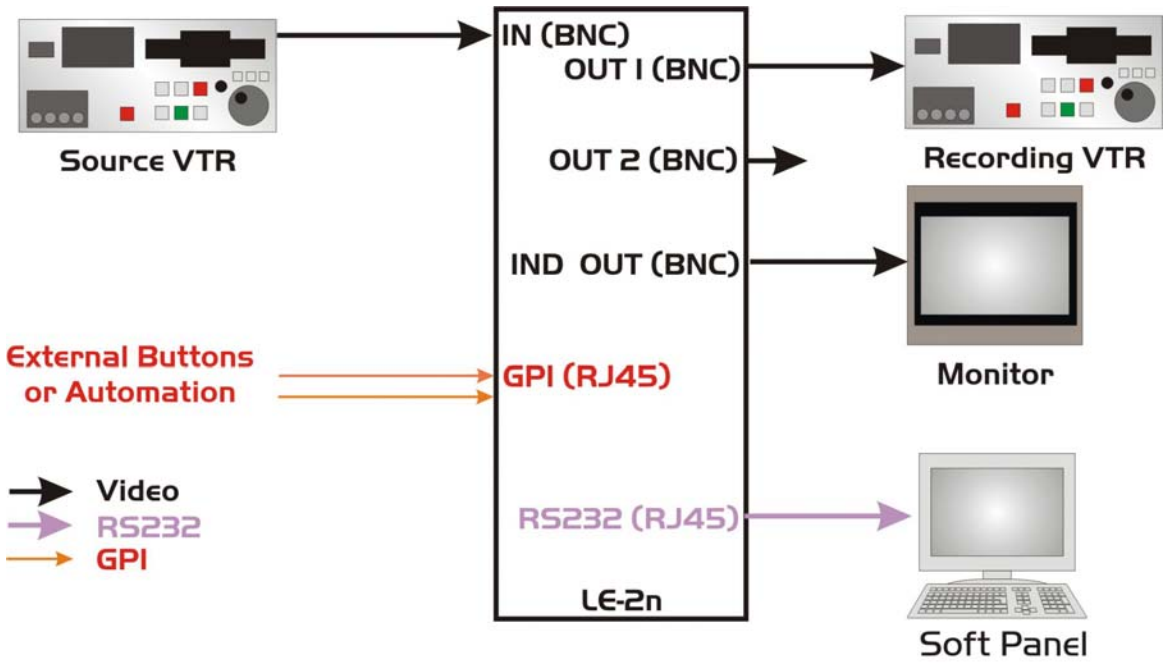

Figure 3-2 - LE-2n Typical connections.

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4 Legaliser Processing

A Block diagram of the legaliser is shown in Figure 4-1. Each section is discussed below.

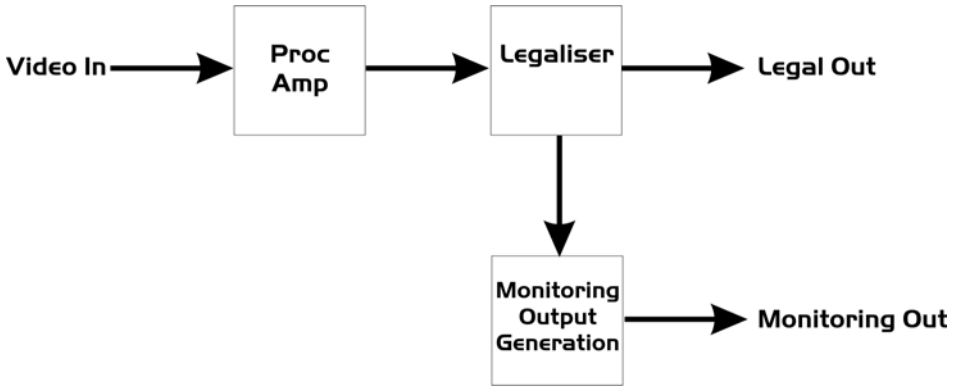

Figure 4-1 - Basic Legaliser Structure

4.1 Proc Amp

This enables the luma gain to be adjusted from 0 to 200%, Similarly the chroma also is adjustable from 0 to 200%. Full 10 bit by 10 bit multipliers are used with a rounded 10 bit product. Black level adjustment is also applied at this point as is hue adjustment which allows for ±180° of hue rotation. These controls are accessed via the “Picture” menu.

4.2 Legaliser

The legaliser operates in one of three modes; RGB, YUV or Composite. The mode is selected via the top level mode menu. Each mode is discussed below. In all modes the legaliser is transparent to pixels within the legal range.

4.2.1 Composite Mode

The basic form of the composite legaliser is shown in Figure 4-2. In composite mode the legaliser restricts the Y, U & V components such that when the signal is converted to a composite waveform the Y component stays within the range allowed by the Y High Clip and Y Low Clip and the total composite waveform stays within the range defined by Comp High Clip and Comp Low Clip.

The legaliser works by selectively reducing the saturation of pixels which would otherwise result in over modulation of the composite waveform. Composite mode preserves the hue of each pixel but not the saturation.

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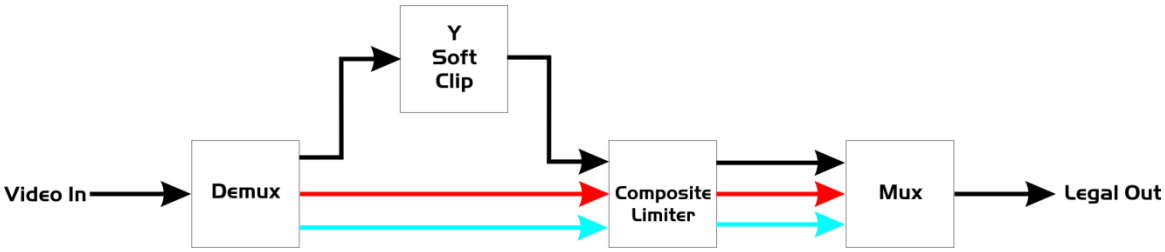

Figure 4-2 - Composite Legaliser Structure

4.2.2 RGB Mode

The basic form of the RGB legaliser is shown in Figure 4-3. In RGB mode the legaliser first converts the video from the YUV colour space to the RGB colour space. The RGB data is then soft clipped according to the settings for RGB High Clip & Knee and RGB Low Clip & Knee. Finally the clipped RGB data is converted back to the YUV colour space. The RGB legal colour space is a subset of the composite legal colour space so an RGB legal signal is also composite legal but the reverse is not true.

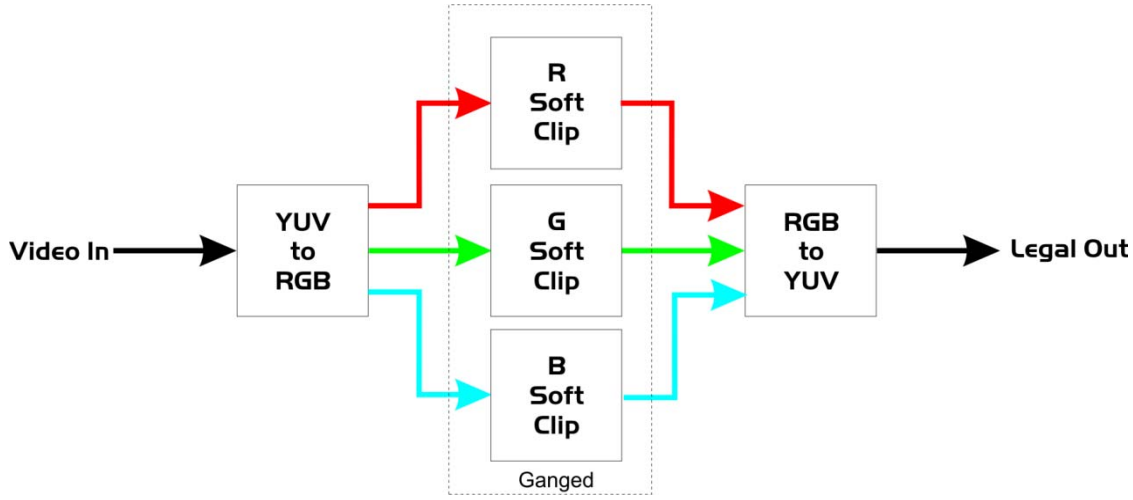

Figure 4-3 - RGB Legaliser Structure

4.2.3 YUV Mode

The basic form of the YUV legaliser is shown in Figure 4-4. In YUV mode the legaliser provides direct clipping of the raw YUV data using separate clip and knee parameters for the Y and colour difference components.

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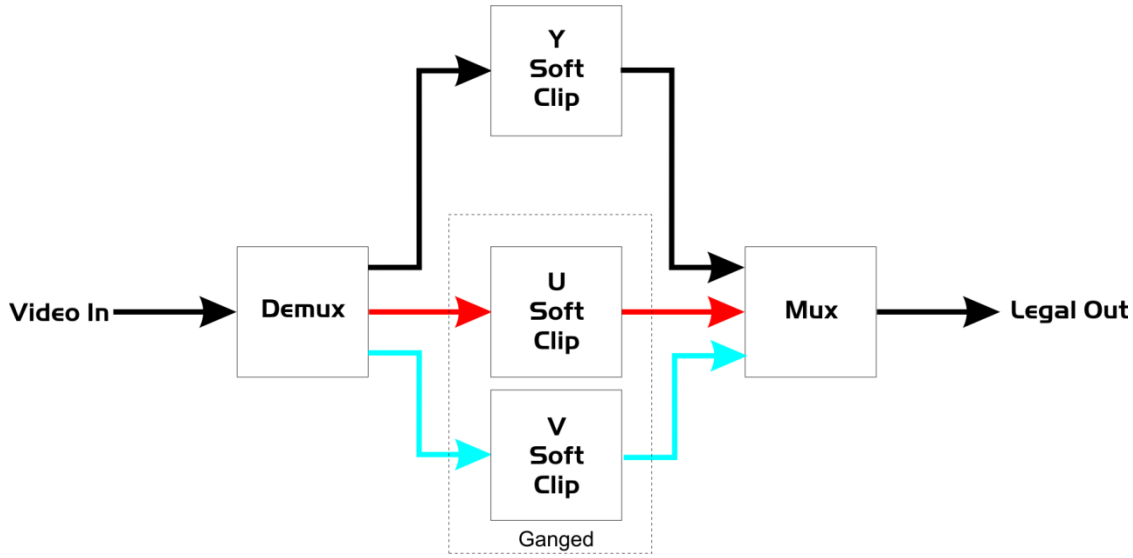

Figure 4-4 - YUV Legaliser Structure

4.2.4 Comp + RGB mode

The video signal is legalised as described in 4.2.1 above and then the legalised signal is passed through a second legaliser and legalised as in 4.2.2 above.

4.2.5 Clip & Knee

Many of the legaliser functions present Clip and Knee parameters to the user. The Clip parameters specify the maximum and minimum values the system legaliser will allow to pass. Figure 4-5 shows an illegal input to the clipper with detail in the illegal highlight and lowlight areas of the signal. When the knee values are set to the same value as their respective Clips the legaliser operates as a hard-clipper as shown in Figure 4-6 show shows the now legal signal but the detail in the highlights and lowlights has been lost. Figure 4-7 shows the same input signal legalised with a 10% difference between the Clips and their respective Knees. The highlight/lowlight detail has been compressed into the legal region at the expense of some of the dynamic range of the originally legal part of the waveform.

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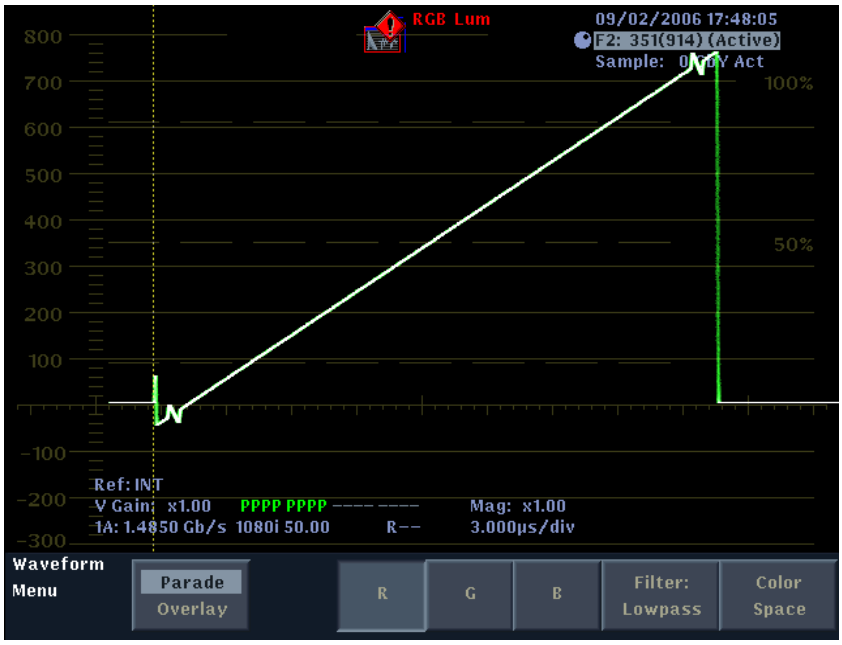

Figure 4-5 - Illegal Source

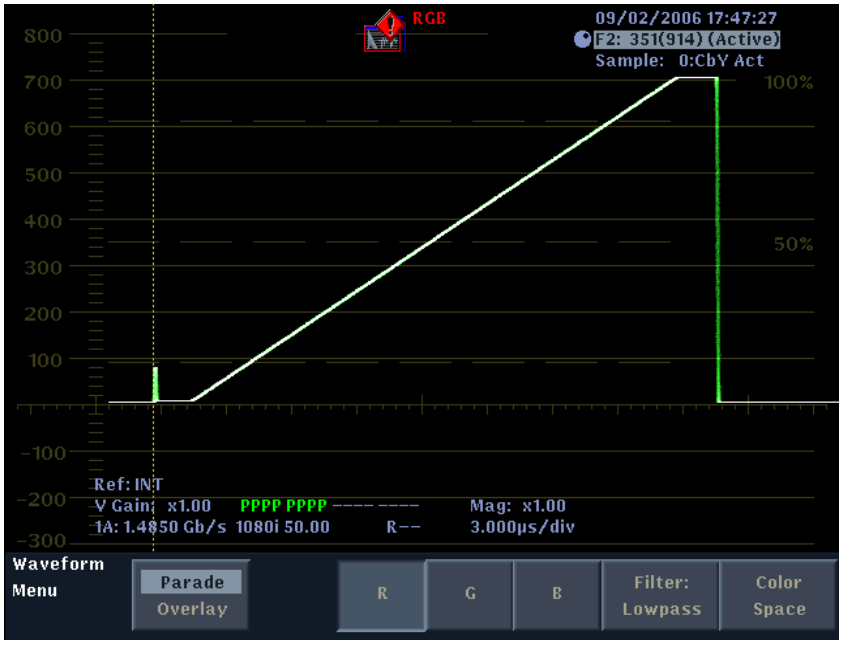

Figure 4-6 - Hard Clipped Output

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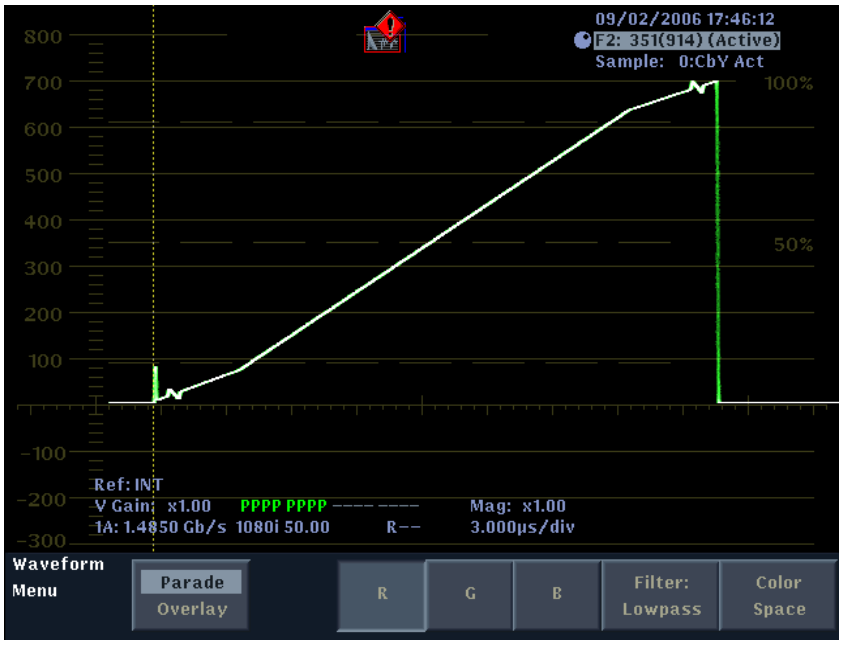

Figure 4-7 - Soft Clipped Output

4.3Monitoring Output Generation

The second output of the legaliser can be configures either as a second legal output or to display which areas of the picture are being processed by the legaliser. The “MonOp” menu provides control of this feature and allows the user to select which colour is used to represent the processed picture area.

When used as an indicate output the selected colour is keyed over the legal output with the opacity of the colour indicating how illegal the area is. Because signals are typically only slightly illegal the gain on the keyer can be controlled to deliver the desired mix. The gain is controlled by the “Gamut Gain” menu and setting this menu to its maximum value will give the same output as a traditional indicate output.

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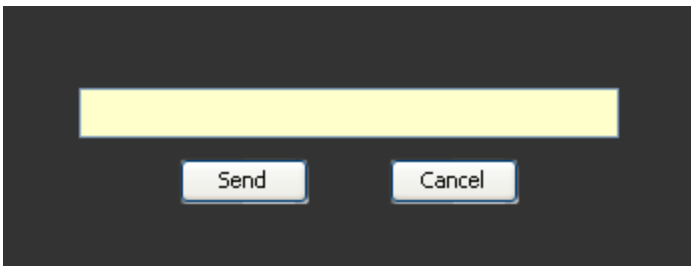
5 Other Features/Messaging

The messaging system is used to access some features within the unit. This is done differently if you are using the soft panel than if you are using a “hard” FP-9 Panel.

5.1 Messaging with the soft java panel.

Use [Tools > Send Message] to see the message screen as below:



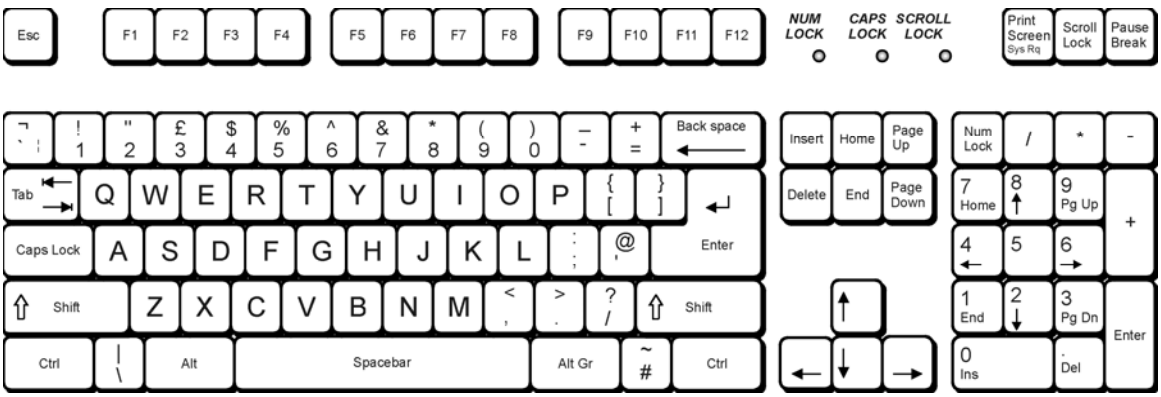
The text box will accept a message up to 32 characters in length.

Click the *Send* button to send the message. The Status Bar will display a confirmation or error message to acknowledge success or failure.

Click the *Cancel* button to return to the normal menu window.

5.2 Messaging with an FP-9.

Plug in a PS-2 Keyboard into a Flexipanel and select the appropriate processor card with a device button. (See Figure 2-3 for connector location). Hit F9 function key. The LCD displays will change to text entry mode. Now type in the text and press return to send their message. Please be aware that the FP-9 only maps to a UK keyboard. Other keyboards may be used but the location of the keys must be referenced to the diagram below.



5-1 UK keyboard reference diagram.

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5.3 Memories

5.3.1 Power on memory

On power up, this product will follow the power on memory settings set as on menu 144.

5.3.2 User Memories

The LE-2n has 6 user memories for each of the three basic line standard types, 625, 525 and 1080/720. Each bank of six memories are independent to each other. They are initially named, Mem 1→6 (625) or (525) and Mem 13→18 (1080/720. This system also includes six presets for common legalisation standards.

From LE-2n V1.08 (SD V1.06/HD V1.05) - When the line standard changes or the unit is re-powered, the preset or user memory that was last used for the line standard will be automatically restored.

Whilst the video is fed to the unit, set up the clips etc. as required. Navigate to the “Save” menu for the user memory to be used and save the values. Then navigate to the “Recall” menu for the user memory to be used and recall the values. Once the user memory has been recalled it will be automatically restored each time that video standard is re-input.

5.3.3 Naming User Memories

The user memories can be named with up to 6 characters. To name memory 1, “MyLeg1”

1. Use the appropriate messaging system to send “M01: MyLeg1” (do not include the quotes)
2. You may get a “not acknowledged” message, this does not matter.

Other memories can be named in the same way but changing the 01 to another memory number.

5.4 Tamper Locking the LE-2.

The user can lock specific menus or all the menus on the LE-2 so that it cannot be adjusted with a manual control panel. This does not effect automation.

To lock only menu 44. (RGB Hi Clip):

1. Use the appropriate messaging system to send “L05:” (do not include the quotes)

A padlock symbol will appear on the menu and it cannot be adjusted. To unlock menu 44, type “A44:”. Other menus are done in the same way

To lock the whole product type “L:” and to unlock the whole product type “A:” .

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5.5 GPI/Tally Set-up.

5.5.1 On-Board GPI's

The LE-2 is a geNETics product. The geNETics system uses generic Input/Output cards which have 2 GPI's. These GPI's activate the first 2 user memories in the system. The user memories do have different initial names depending on the operational mode. (Memories are stored separately for 625, 525, 1080 and 720 line standards)

GPI 1 - Activate User Memory 1 (625), 7 (525), 13 (1080), 19 (720)

GPI 2 - Activate User Memory 2 (625), 8 (525), 14 (1080), 20 (720)

Activate = Short to ground or logic 0V. See Appendix.

5.5.2 Configuring tallies on the etherbox.

The LE-2 can use an etherbox tally to indicate that it is is bypass (no processing) mode

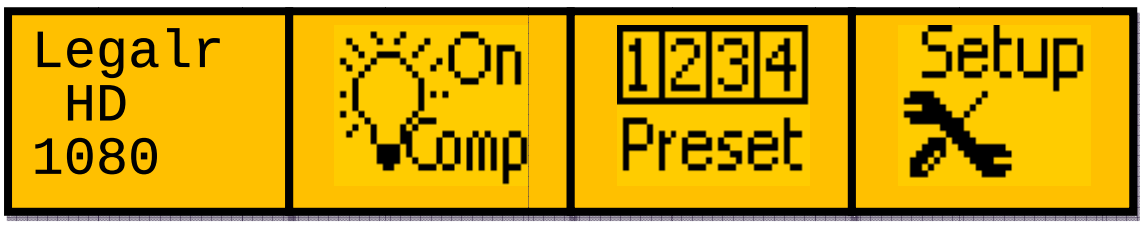
The etherbox chassis has three usable tallies. These are Tallies 11,12 and 13. Set up menu 121 for the box number and tally number that you wish to use. If you do not wish to use a tally set the box number to 0. Refer to the etherbox manual for interface information.

5.6 The LE-2n Menu Set.

The following set of menus defines the operational controls of the LE-2n.

Note: Only parameters with RED menu numbers are stored in the memories and the Power-ON memory.

Menu 00-03: Top Level Menus



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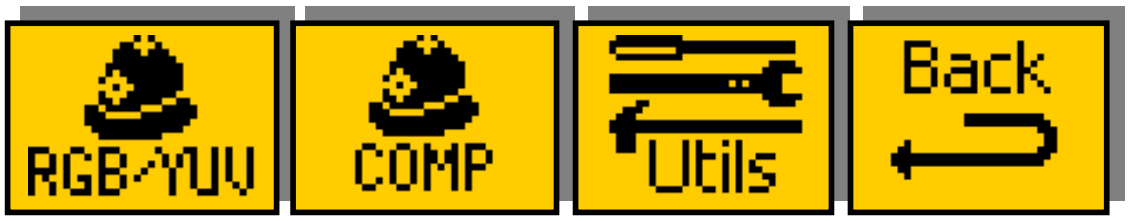
Menu Num.	Heading	Automation	Function
00	Product and video input	none	This menu displays the product and the video status.
01	MODE	OFF RGB YUV COMP RGB/COMP [0→4]	Selects the legaliser modes
02	PRESET	none	Go to the main Preset menus (4-7)
03	SETUP	none	Go to the main Setup menus (8-11)

Menu 04-07: Preset Menus

Menu Num.	Heading	Automation	Function
04	STND PRESET	none	Go to the User Preset menus (12-15)
05	USER PRESET	none	Go to the Standard Preset menus (20-23)
06		none	
07	BACK	none	Back to the main operational menus (0-3)

Menu 08-11: Setup Menus



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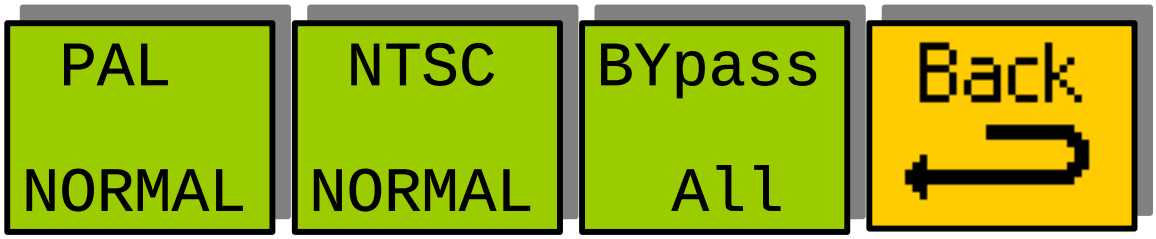
Menu Num.	Heading	Automation	Function
08	RGB/YUV	none	Got to the RGB/YUV main menus (36-39)
09	COMP	none	Go to the main COMP menus (80-83)
10	UTILS	none	Go To the main Utility menus (108-115)
11	BACK	none	Back to the main Operation menus (0-3)

Menus 12-15: Presets - PAL



Menu Num.	Heading	Automation	Function
12	PAL NORMAL Preset Setting	1=Recall (Variable 1)	Pressing this will Set The system to Composite Clipping: Hi Luma Clip = +700mv Hi Chroma Clip = +932mv Lo Luma Clip = +0mv Lo Chroma Clip = -229mv Hi Luma Knee = +700mv Hi Chroma Knee = +932mv Lo Luma Knee = +0mv Lo Chroma Knee = -229mv
13	NTSC NORMAL Preset Setting	1=Recall (Variable 1)	Pressing this will Set The system to Composite Clipping: Hi Luma Clip = +702mv Hi Chroma Clip = +843mv Lo Luma Clip = +38mv Lo Chroma Clip = -185mv Hi Luma Knee = +702mv Hi Chroma Knee = +843mv Lo Luma Knee = +38mv Lo Chroma Knee = -185mv
14	Bypass	1=Recall	Pressing this will Set The

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	All	(Variable 1)	Legaliser to OFF
15	BACK	none	Go back to the main Preset menus (4-7)

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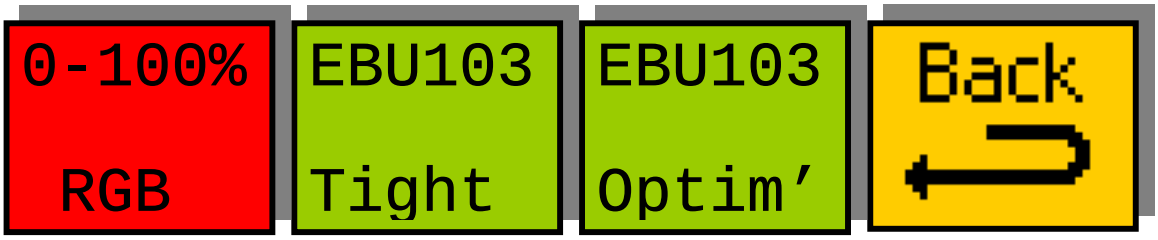
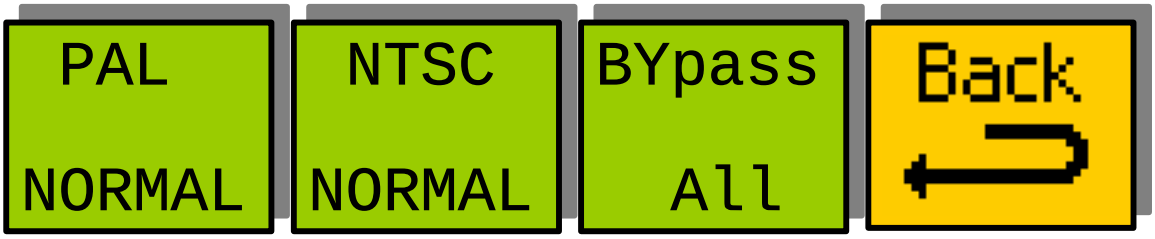
Menus 16-19: Presets - PAL



Menu	Heading	Automation	Function
16	0-100% RGB Preset Setting	1=Recall	Pressing this will Set The system to RGB Clipping: Hi RGB Clip = 100% Lo RGB Clip = 0.0% Hi RGB Knee = 100% Lo RGB Knee = 0.0%
17	EBU 103 Tight Setting	1=Recall (Variable 1)	Pressing this will Set The system to RGB Clipping: Hi RGB Clip = 103% Lo RGB Clip = -1.0% Hi RGB Knee = 103% Lo RGB Knee = -1.0%
18	EBU 103 Optimum Setting	1=Recall (Variable 1)	Pressing this will Set The system to RGB Clipping: Hi RGB Clip = 101% Lo RGB Clip = 0.0% Hi RGB Knee = 101% Lo RGB Knee = 0.0%
19	BACK	none	Go back to the main Preset menus (4-7)

Menus 12-15: Presets - NTSC



Menu Num.	Heading	Automation	Function
12	PAL NORMAL Preset	1=Recall (Variable 1)	Pressing this will Set The system to Composite Clipping: Hi Luma Clip = +99.6 IRE

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	Setting		Hi Chroma Clip = +132.4 IRE Lo Luma Clip = +0.0 IRE Lo Chroma Clip = -30.2 IRE Hi Luma Knee = +99.6 IRE Hi Chroma Knee = +132.4 IRE Lo Luma Knee = +0.0 IRE Lo Chroma Knee = -30.2 IRE Pedestal = 7.5 IRE
13	NTSC NORMAL Preset Setting	1=Recall (Variable 1)	Pressing this will Set The system to Composite Clipping: Hi Luma Clip = +100 IRE Hi Chroma Clip = +120 IRE Lo Luma Clip = +7.5 IRE Lo Chroma Clip = -24 IRE Hi Luma Knee = +100 IRE Hi Chroma Knee = +120 IRE Lo Luma Knee = +7.5 IRE Lo Chroma Knee = -24 IRE Pedestal = 7.5 IRE
14	Bypass All	1=Recall (Variable 1)	Pressing this will Set The Legaliser to OFF
15	BACK	none	Go back to the main Preset menus (4-7)

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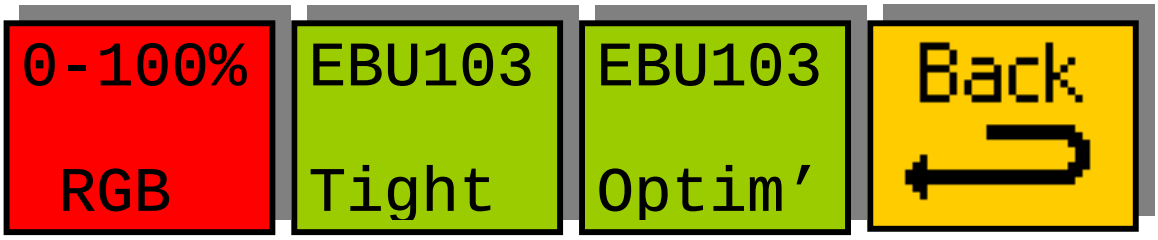
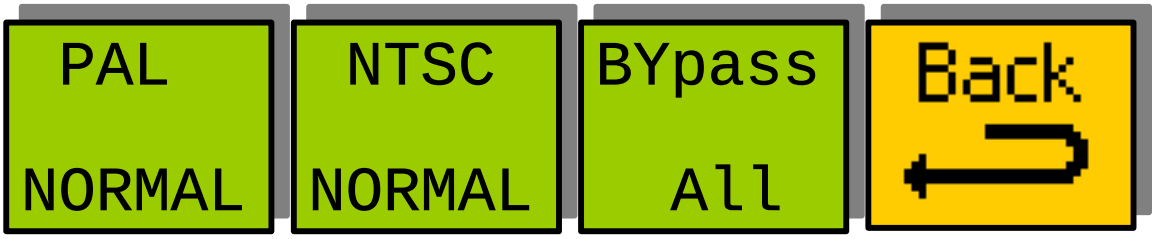
Menus 16-19: Presets - NTSC



Menu	Heading	Automation	Function
16	0-100% RGB Preset Setting	1=Recall	Pressing this will Set The system to RGB Clipping: Hi RGB Clip = 100% Lo RGB Clip = 0.0% Hi RGB Knee = 100% Lo RGB Knee = 0.0%
17	EBU 103 Tight Setting	1=Recall (Variable 1)	Pressing this will Set The system to RGB Clipping: Hi RGB Clip = 103% Lo RGB Clip = -1.0% Hi RGB Knee = 103% Lo RGB Knee = -1.0%
18	EBU 103 Optimum Setting	1=Recall (Variable 1)	Pressing this will Set The system to RGB Clipping: Hi RGB Clip = 101% Lo RGB Clip = 0.0% Hi RGB Knee = 101% Lo RGB Knee = 0.0%
19	BACK	none	Go back to the main Preset menus (4-7)

Menus 12-15: Presets - 1080



Menu Num.	Heading	Automation	Function
12	PAL NORMAL Preset	1=Recall (Variable 1)	Pressing this will Set The system to Composite Clipping: Hi Luma Clip = +700mv

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	Setting		Hi Chroma Clip = +932mv Lo Luma Clip = +0mv Lo Chroma Clip = -230 Hi Luma Knee = +700mv Hi Chroma Knee = +932mv Lo Luma Knee = +0mv Lo Chroma Knee = -230 Colour Space = PAL Pedestal = 0.0IRE
13	NTSC NORMAL Preset Setting	1=Recall (Variable 1)	Pressing this will Set The system to Composite Clipping: Hi Luma Clip = +99.9IRE Hi Chroma Clip = +120IRE Lo Luma Clip = +0.0IRE Lo Chroma Clip = -24IRE Hi Luma Knee = +99.9IRE Hi Chroma Knee = +120IRE Lo Luma Knee = +0.0IRE Lo Chroma Knee = -24IRE Colour Space = NTSC Pedestal = 7.5IRE
14	Bypass All	1=Recall (Variable 1)	Pressing this will Set The Legaliser to OFF
15	BACK	none	Go back to the main Preset menus (4-7)

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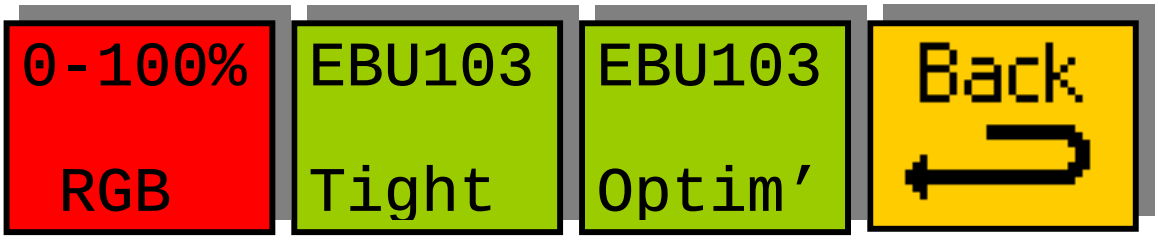
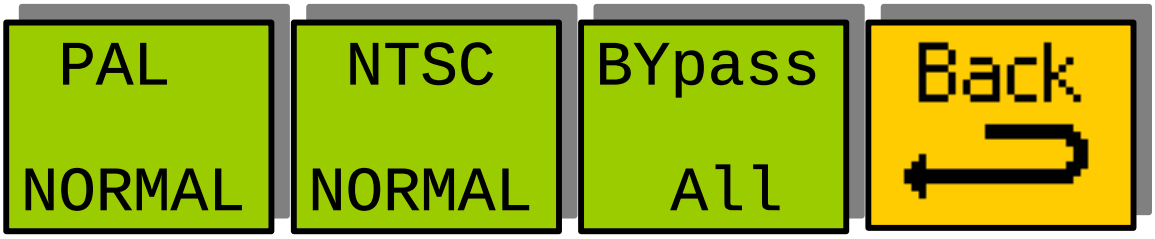
Menus 16-19: Presets - 1080



Menu	Heading	Automation	Function
16	0-100% RGB Preset Setting	1=Recall	Pressing this will Set The system to RGB Clipping: Hi RGB Clip = 100% Lo RGB Clip = 0.0% Hi RGB Knee = 100% Lo RGB Knee = 0.0%
17	EBU 103 Tight Setting	1=Recall (Variable 1)	Pressing this will Set The system to RGB Clipping: Hi RGB Clip = 103% Lo RGB Clip = -1.0% Hi RGB Knee = 103% Lo RGB Knee = -1.0%
18	EBU 103 Optimum Setting	1=Recall (Variable 1)	Pressing this will Set The system to RGB Clipping: Hi RGB Clip = 101% Lo RGB Clip = 0.0% Hi RGB Knee = 101% Lo RGB Knee = 0.0%
19	BACK	none	Go back to the main Preset menus (4-7)

Menus 12-15: Presets - 720



Menu Num.	Heading	Automation	Function
12	PAL NORMAL Preset	1=Recall (Variable 1)	Pressing this will Set The system to Composite Clipping: Hi Luma Clip = +700mv

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	Setting		Hi Chroma Clip = +932mv Lo Luma Clip = +0mv Lo Chroma Clip = -230 Hi Luma Knee = +700mv Hi Chroma Knee = +932mv Lo Luma Knee = +0mv Lo Chroma Knee = -230 Colour Space = PAL Pedestal = 0.0
13	NTSC NORMAL Preset Setting	1=Recall (Variable 1)	Pressing this will Set The system to Composite Clipping: Hi Luma Clip = +99.9IRE Hi Chroma Clip = +120IRE Lo Luma Clip = +0.0IRE Lo Chroma Clip = -24IRE Hi Luma Knee = +99.9IRE Hi Chroma Knee = +120IRE Lo Luma Knee = +0.0IRE Lo Chroma Knee = -24IRE Colour Space = NTSC Pedestal = 7.5
14	Bypass All	1=Recall (Variable 1)	Pressing this will Set The Legaliser to OFF
15	BACK	none	Go back to the main Preset menus (4-7)

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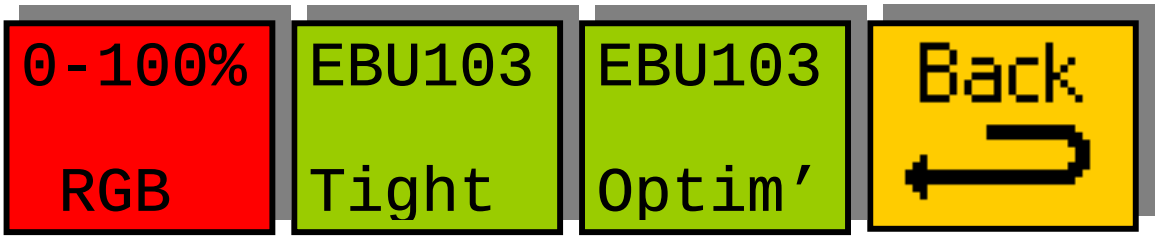
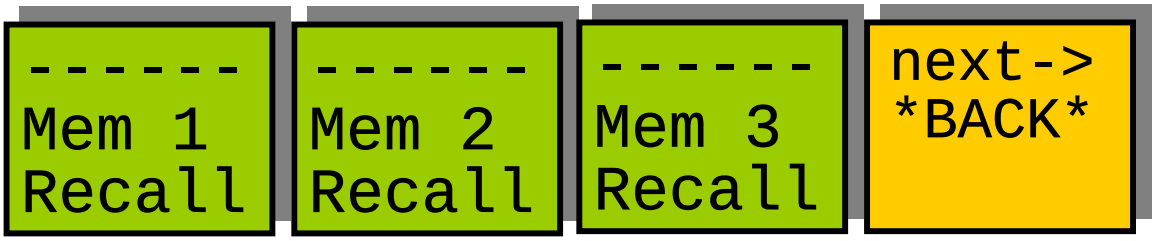
Menus 16-19: Presets - 720



Menu	Heading	Automation	Function
16	0-100% RGB Preset Setting	1=Recall	Pressing this will Set The system to RGB Clipping: Hi RGB Clip = 100% Lo RGB Clip = 0.0% Hi RGB Knee = 100% Lo RGB Knee = 0.0%
17	EBU 103 Tight Setting	1=Recall (Variable 1)	Pressing this will Set The system to RGB Clipping: Hi RGB Clip = 103% Lo RGB Clip = -1.0% Hi RGB Knee = 103% Lo RGB Knee = -1.0%
18	EBU 103 Optimum Setting	1=Recall (Variable 1)	Pressing this will Set The system to RGB Clipping: Hi RGB Clip = 101% Lo RGB Clip = 0.0% Hi RGB Knee = 101% Lo RGB Knee = 0.0%
19	BACK	none	Go back to the main Preset menus (4-7)

Menus 20–23: Memory Controls (See User Memories 5.3.2)



Menu Num.	Heading	Automation	Function
20	MEM1 (HD=MEM13)	1=Recall (Variable 1)	Pressing this will recall Memory number 1.User Names can be programmed in to the

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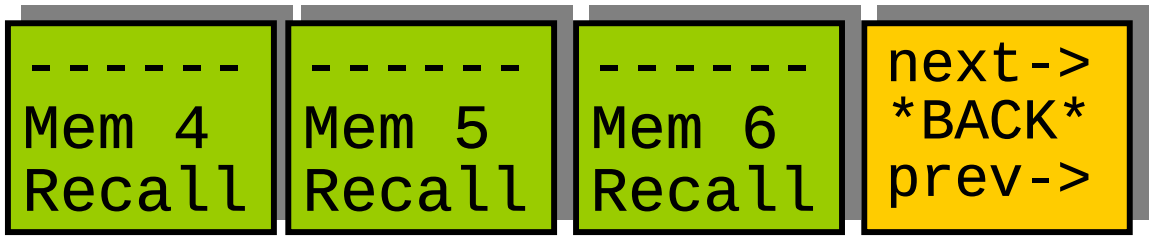
			memories using a keyboard. See “geNETics User guide”, section “Giving product Memories names”
21	MEM2 (HD=MEM14)	1=Recall (Variable 1)	Pressing this will recall Memory number 2.
22	MEM3 (HD=MEM15)	1=Recall (Variable 1)	Pressing this will recall Memory number 3.
23	BACK	none	Got to the Main Preset menus (4-7)

Menus 24-27: Memory Controls (See User Memories 5.3.2)



Menu Num.	Heading	Automation	Function
24	MEM4 (HD=MEM16)	1=Recall (Variable 1)	Pressing this will recall Memory number 4.
25	MEM5 (HD=MEM17)	1=Recall (Variable 1)	Pressing this will recall Memory number 5.
26	MEM6 (HD=MEM18)	1=Recall (Variable 1)	Pressing this will recall Memory number 6.
27	BACK	none	Go to the main Preset menus (4-7)

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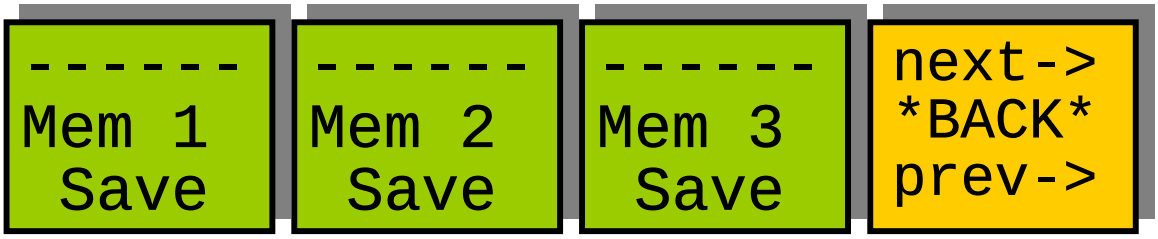
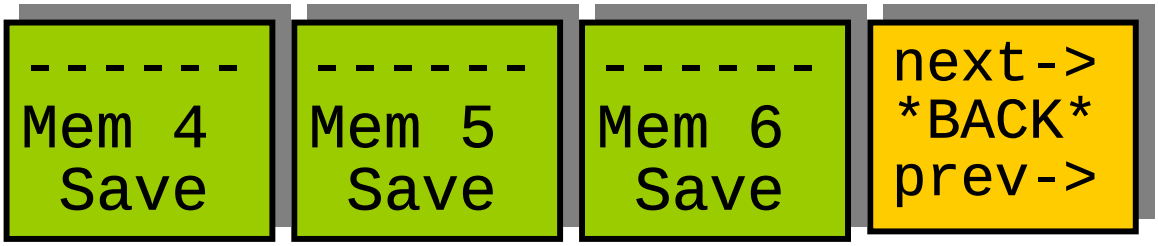
Menu 28-31: Memory Controls (See User Memories 5.3.2)



Menu Num.	Heading	Automation	Function
28	SAVE MEM1 (HD=MEM13)	1= Save	Pressing this will Save Memory number 1.
29	SAVE MEM2 (HD=MEM14)	1= Save	Pressing this will Save Memory number 2.
30	SAVE MEM3 (HD=MEM15)	1= Save	Pressing this will Save Memory number 3.
31	BACK	none	Go to the main Preset menus (4-7)

Menu 32-35: Memory Controls (See User Memories 5.3.2)



Menu Num.	Heading	Automation	Function
32	SAVE MEM4 (HD=MEM16)	1= Save	Pressing this will Save Memory number 4.
33	SAVE MEM5 (HD=MEM17)	1= Save	Pressing this will Save Memory number 5.
34	SAVE MEM6	1= Save	Pressing this will Save Memory number 6.

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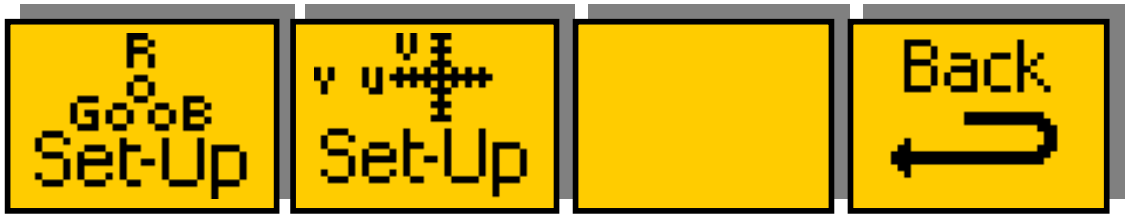
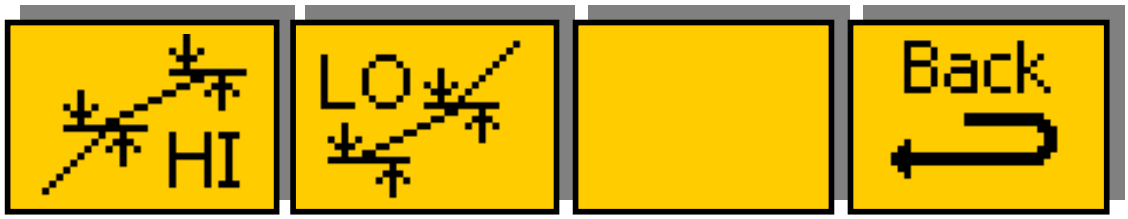
	(HD=MEM18)		
35	BACK	none	Go to the main Preset menus (4-7)

Menu 36-39: RGB/YUV Setup Menus



Menu Num.	Heading	Automation	Function
36	RGB Setup	none	Go to the RGB Setup menus (40-43)
37	YUV Setup	none	Go to the YUV Setup menus (52-55)
38	Blank	none	
39	BACK	none	Go to the Setup menus (6-8)

Menu 40-43: RGB Clip and Knee Menus



Menu Num.	Heading	Automation	Function
40	Hi	none	Go to the RGB Hi Clip and Hi Knee Clipping menus (44-47)
41	Lo	none	Go to the RGB Lo Clip and Lo Knee Clipping menus (48-51)
42		none	Blank
43	BACK	none	Go to the RGB/YUV menus (36-39)

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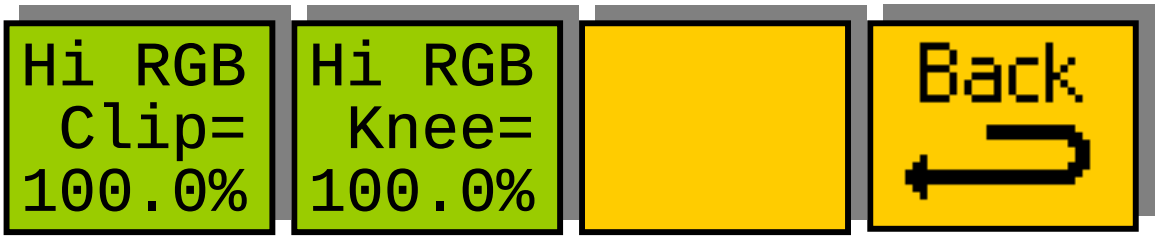
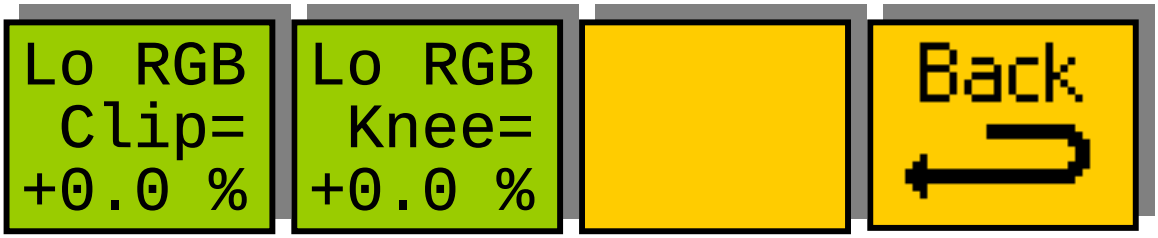
Menus 44-47: RGB High Clip and Knee settings



Menu Num.	Heading	Automation	Function
44	High Clip Level	51% → 109% [512→1023]	This indicates the High Clip point for the RGB Clipping. This is normally set to 100% for clipping at 0.7V in the analogue domain.
45	High Knee Level	51% → 109% [512→1023]	This indicates the High Knee point for the RGB Clipping. This can be set to give a “soft clip” from this knee point to the hard clip point.
46		none	Blank
47	BACK	none	Go to the RGB Clip and Knee menus (40-43)

Menu 48-51: RGB Low Clip and Knee Settings



Menu Num.	Heading	Automation	Function
48	Low Clip Level	-7%→ 50% [1→511]	This indicates the Low Clip point for the RGB Clipping. This is normally set to 0% for clipping at 0V in the analogue domain.
49	Low Knee Level	-7%→ 50% [1→511]	This indicates the Low Knee point for the RGB Clipping. This can be set to give a “soft clip” from this knee point to the Low clip point.
50		none	Blank
51	BACK	none	Go to the RGB Clip and Knee menus (40-43)

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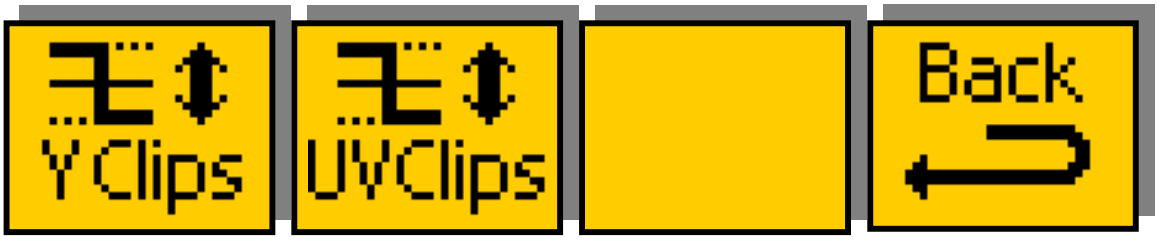
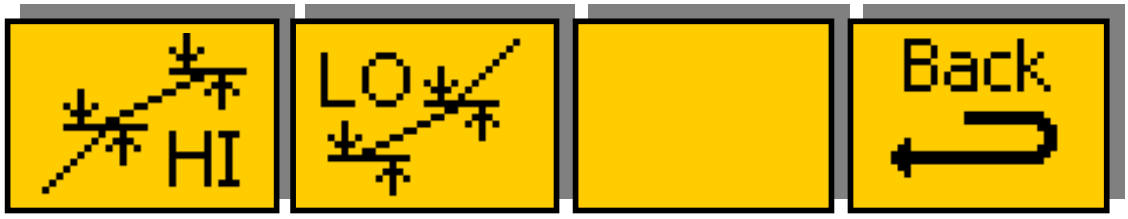
Menu 52-55: YUV Clips



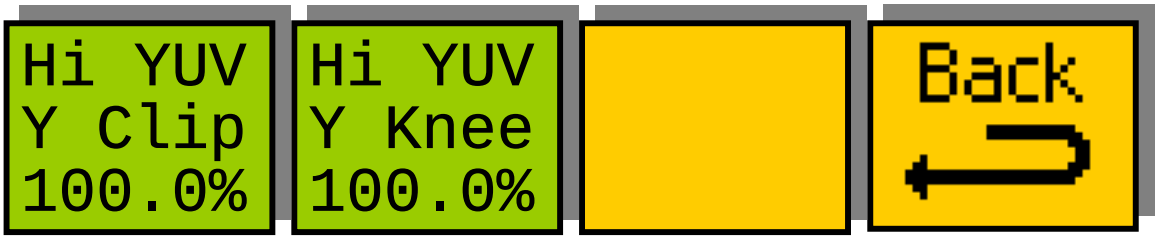
Menu Num.	Heading	Automation	Function
52	Y Clips	none	Go to the Y Clip and Knee menus (56-59)
53	UV Clips	none	Go to the UV Clip and Knee menus (68-71)
54		none	Blank
55	BACK	none	Go to the RGB/YUV menus (36-39)

Menu 56-59: YUV Y Clip and Knee Menus



Menu Num.	Heading	Automation	Function
56	Hi	none	Go to the YUV Y Hi Clip and Hi Knee Clipping menus (60-63)
57	Lo	none	Go to the YUV Y Lo Clip and Lo Knee Clipping menus (64-67)
58		none	Blank
59	BACK	none	Go to the YUV menus (52-55)

Menus 60-63: YUV Y High Clip and Knee settings



Menu Num.	Heading	Automation	Function

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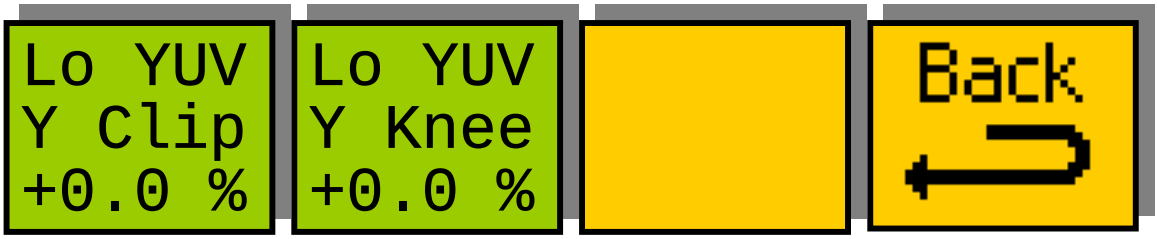
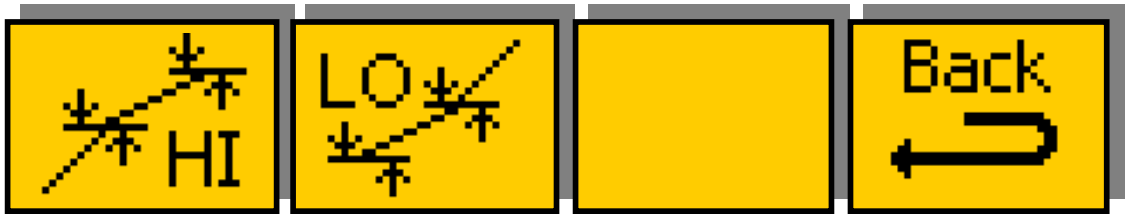
60	High Clip Level	51% → 109% [512→1023]	This indicates the High Clip point for the YUV Y Clipping. This is normally set to 100% for clipping at 0.7V in the analogue domain.
61	High Knee Level	51% → 109% [512→1023]	This indicates the High Knee point for the YUV Y Clipping. This can be set to give a “soft clip” from this knee point to the hard clip point.
62		none	Blank
63	BACK	none	Go to the YUV Y Clip and Knee menus (56-59)

Menu 64-67: YUV Y Low Clip and Knee Settings



Menu Num.	Heading	Automation	Function
64	Low Clip Level	-7%→ 50% [1→511]	This indicates the Low Clip point for the YUV Y Clipping. This is normally set to 0% for clipping at 0V in the analogue domain.
65	Low Knee Level	-7%→ 50% [1→511]	This indicates the Low Knee point for the YUV Y Clipping. This can be set to give a “soft clip” from this knee point to the Low clip point.
66		none	Blank
67	BACK	none	Go to the YUV Y Clip and Knee menus (56-59)

Menu 68-71: YUV UV Clip and Knee Menus



Menu Num.	Heading	Automation	Function
68	Hi	none	Go to the YUV UV Hi Clip and Hi

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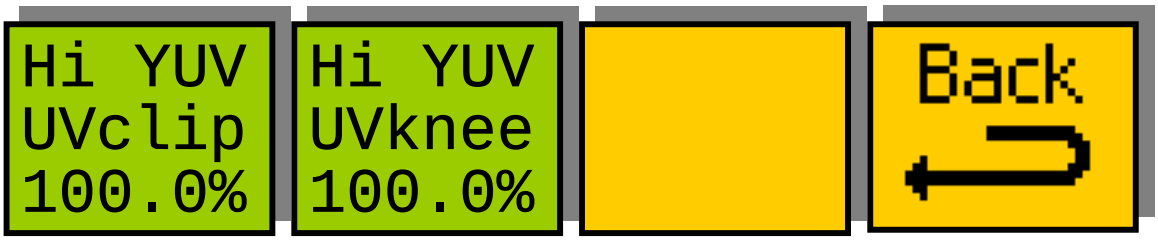
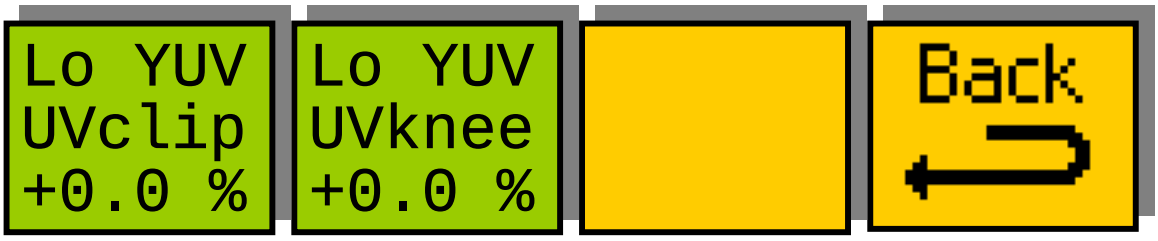
			Knee Clipping menus (72-75)
69	Lo	none	Go to the YUV UV Lo Clip and Lo Knee Clipping menus (76-79)
70		none	Blank
71	BACK	none	Go to the YUV menus (52-55)

Menus 72-75: YUV UV High Clip and Knee settings



Menu Num.	Heading	Automation	Function
72	High Clip Level	51% → 109% [512→1023]	This indicates the High Clip point for the YUV UV Clipping. This is normally set to 100% for clipping at 0.7V in the analogue domain.
73	High Knee Level	51% → 109% [512→1023]	This indicates the High Knee point for the YUV UV Clipping. This can be set to give a “soft clip” from this knee point to the hard clip point.
74		none	Blank
75	BACK	none	Go to the RGB Clip and Knee menus (68-71)

Menu 76-79: YUV UV Low Clip and Knee Settings



Menu Num.	Heading	Automation	Function
76	Low Clip Level	-7%→ 50% [1→511]	This indicates the Low Clip point for the YUV UV Clipping. This is normally set to 0% for clipping at 0V in the analogue domain.
77	Low Knee	-7%→ 50% [1→511]	This indicates the Low Knee point for the YUV UV Clipping. This can be set

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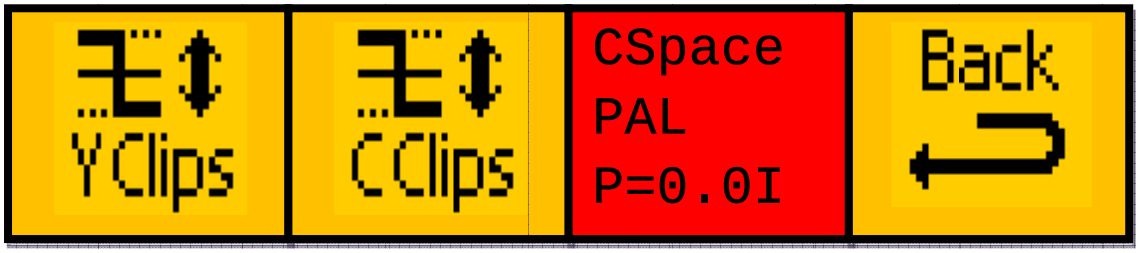
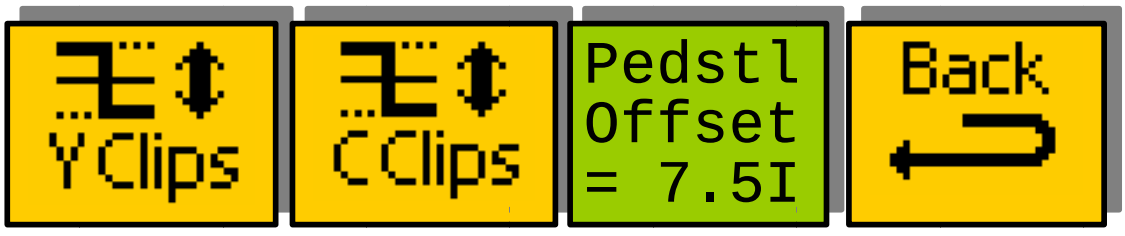
	Level		to give a “soft clip” from this knee point to the Low clip point.
78		none	Blank
79	BACK	none	Go to the YUV UV Clip and Knee menus (68-71)

Menu 80-83: Composite Clip and Knee Menus (HD only)



Menu Num.	Heading	Automation	Function
80	Y Clips	none	Go to the Composite Luma Hi/Lo Clip and Hi/Lo Knee Clipping menus (84-87)
81	C Clips	none	Go to the Composite Chroma Hi/Lo Clip and Hi/Lo Knee Clipping menus (96-99)
82	Colour Space	PAL/NTSC [0:1] 0.0I/7.5I [0:1]	Colour Space and Pedestal IRE setting. This can be set to 0.0 or 7.5 IRE if NTSC has been selected
83	BACK	none	Go to the Setup menus (8-11)

Menu 80-83: Composite Clip and Knee Menus (SD - NTSC)



Menu Num.	Heading	Automation	Function
80	Y Clips	none	Go to the Composite Luma Hi/Lo Clip and Hi/Lo Knee Clipping menus (84-87)
81	C Clips	none	Go to the Composite Chroma Hi/Lo Clip and Hi/Lo Knee Clipping menus (96-99)

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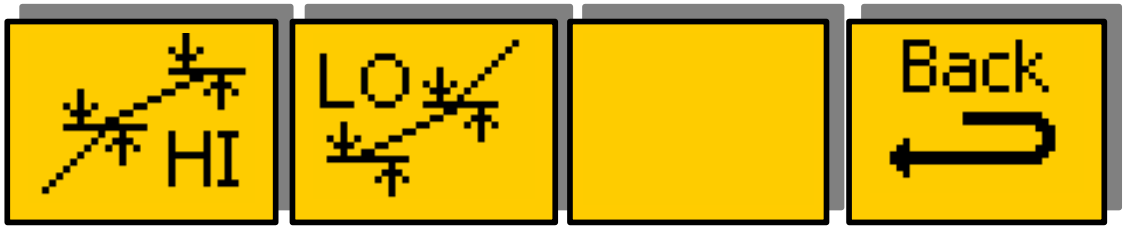
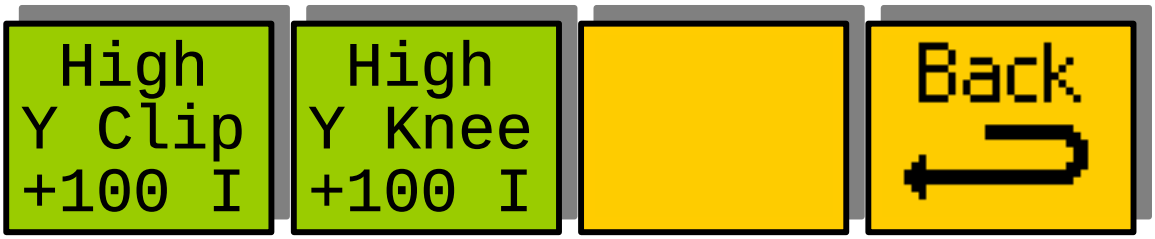
82	Pedestal	0.0I 7.5I [0:1]	Pedestal IRE setting. This can be set to 0.0 or 7.5 IRE.
83	BACK	none	Go to the Setup menus (8-11)

Menu 84-85: Composite Luma Clip and Knee Menus (NTSC)



Menu Num.	Heading	Automation	Function
84	Hi	none	Go to the Composite Luma Hi Clip and Hi Knee Clipping menus (88-91)
85	Lo	none	Go to the Composite Luma Lo Clip and Lo Knee Clipping menus (92-95)
86	Blank		
87	BACK	none	Go to the Setup menus (80-83)

Menus 88-91: Composite Luma High Clip and Knee settings (NTSC)



Menu Num.	Heading	Automation	Function
88	High Clip Level	[8-511]	This indicates the High Clip point for the Composite Luma Clipping.
89	High Knee Level	[8-511]	This indicates the High Knee point for the Composite Luma Clipping. This can be set to give a “soft clip” from this knee point to the hard clip point.
90	Blank		
91	BACK	none	Go to the Composite Clip and Knee menus (84-87)

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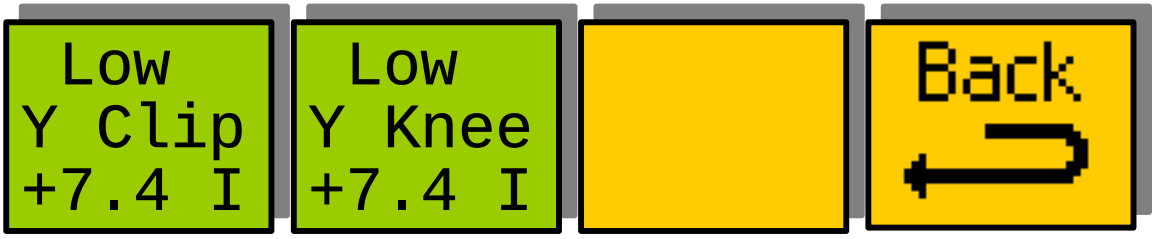
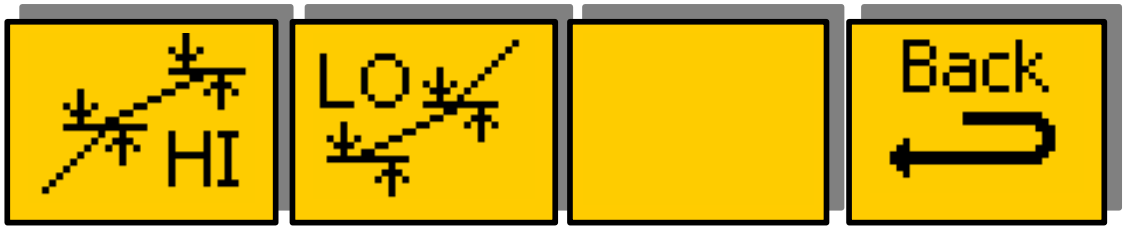
Menu 92-95: Composite Luma Low Clip and Knee Settings (NTSC)



Menu Num.	Heading	Automation	Function
92	Low Clip Level	[8→511]	This indicates the Low Clip point for the Composite Luma Clipping.
93	Low Knee Level	[8→511]	This indicates the Low Knee point for the Composite Luma Clipping. This can be set to give a “soft clip” from this knee point to the hard clip point.
94	Blank		
95	BACK	none	Go to the Composite Clip and Knee menus (84-87)

Menu 96-99: Composite Chroma Clip and Knee Menus (NTSC)



Menu Num.	Heading	Automation	Function
96	Hi	none	Go to the Composite Chroma Hi Clip and Hi Knee Clipping menus (100-103)
97	Lo	none	Go to the Composite Luma Lo Clip and Lo Knee Clipping menus (104-107)
98	Blank		
99	BACK	none	Go to the Setup menus (80-83)

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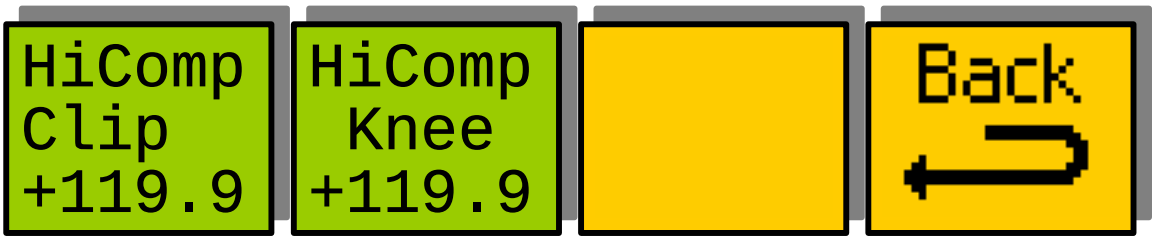
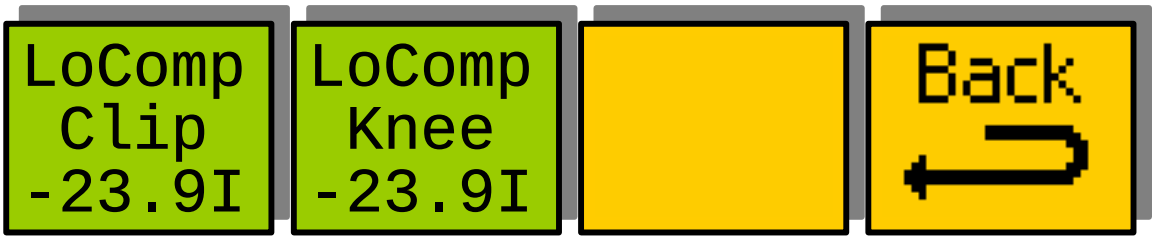
Menus 100-103: Composite Chroma High Clip and Knee settings (NTSC)



Menu Num.	Heading	Automation	Function
100	High Clip Level	[8-511]	This indicates the High Clip point for the Composite Chroma Clipping.
101	High Knee Level	[8-511]	This indicates the High Knee point for the Composite Chroma Clipping. This can be set to give a “soft clip” from this knee point to the hard clip point.
102	Blank		
103	BACK	none	Go to the Composite Clip and Knee menus (96-99)

Menu 104-107: Composite Chroma Low Clip and Knee Settings (NTSC)



Menu Num.	Heading	Automation	Function
104	Low Clip Level	[8→511]	This indicates the Low Clip point for the Composite Chroma Clipping.
105	Low Knee Level	[8→511]	This indicates the Low Knee point for the Composite Chroma Clipping. This can be set to give a “soft clip” from this knee point to the hard clip point.
106	Blank		
107	BACK	none	Go to the Composite Clip and Knee menus (96-99)

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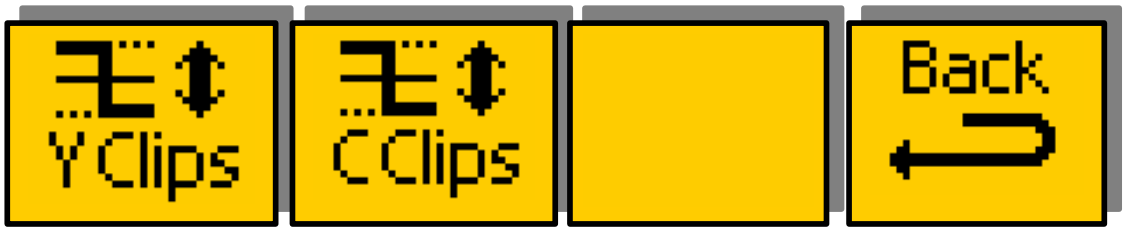
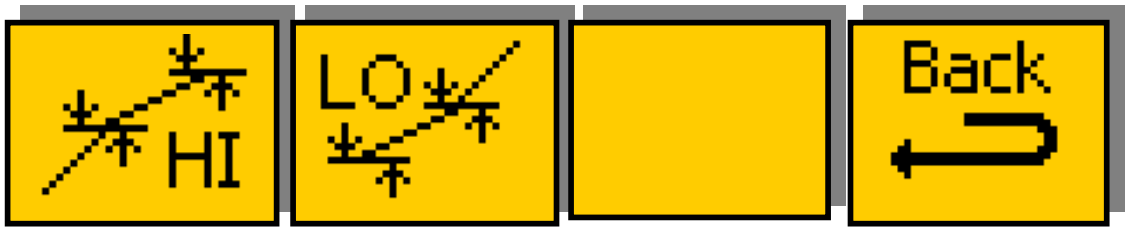
Menu 80-83: Composite Clip and Knee Menus (PAL)



Menu Num.	Heading	Automation	Function
80	Y Clips	none	Go to the Composite Chroma Hi/Lo Clip and Hi/Lo Knee Clipping menus (84-87)
81	C Clips	none	Go to the Composite Chroma Hi/Lo Clip and Hi/Lo Knee Clipping menus (96-99)
82	Blank		
83	BACK	none	Go to the Setup menus (8-11)

Menu 84-87: Composite Luma Clip and Knee Menus (PAL)



Menu Num.	Heading	Automation	Function
84	Hi	none	Go to the Composite Luma Hi Clip and Hi Knee Clipping menus (88-91)
85	Lo	none	Go to the Composite Luma Lo Clip and Lo Knee Clipping menus (92-95)
86		none	Blank
87	BACK	none	Go to the Setup menus (80-83)

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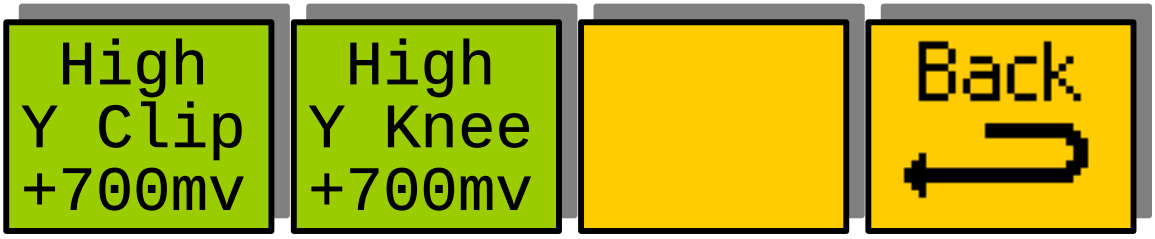
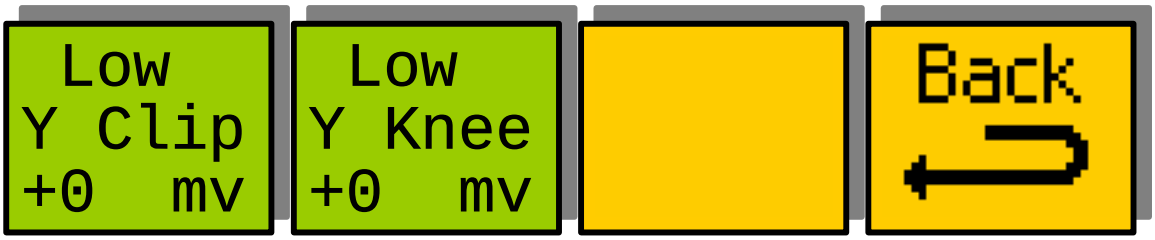
Menus 88-91: Composite Luma High Clip and Knee settings (PAL)



Menu Num.	Heading	Automation	Function
88	High Clip Level	[8-511]	This indicates the High Clip point for the Composite Luma Clipping.
89	High Knee Level	[8-511]	This indicates the High Knee point for the Composite Luma Clipping. This can be set to give a “soft clip” from this knee point to the hard clip point.
90	Blank		
91	BACK	none	Go to the Composite Clip and Knee menus (84-87)

Menu 92-95: Composite Luma Low Clip and Knee Settings (PAL)



Menu Num.	Heading	Automation	Function
92	Low Clip Level	[8→511]	This indicates the Low Clip point for the Composite Luma Clipping.
93	Low Knee Level	[8→511]	This indicates the Low Knee point for the Composite Luma Clipping. This can be set to give a “soft clip” from this knee point to the Low clip point.
94	Blank		
95	BACK	none	Go to the Composite Clip and Knee menus (80-83)

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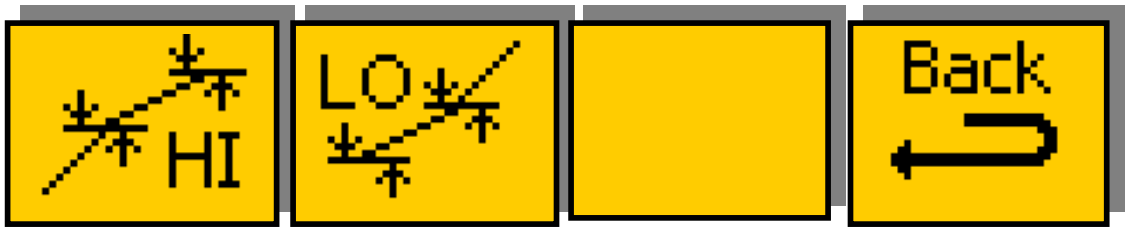
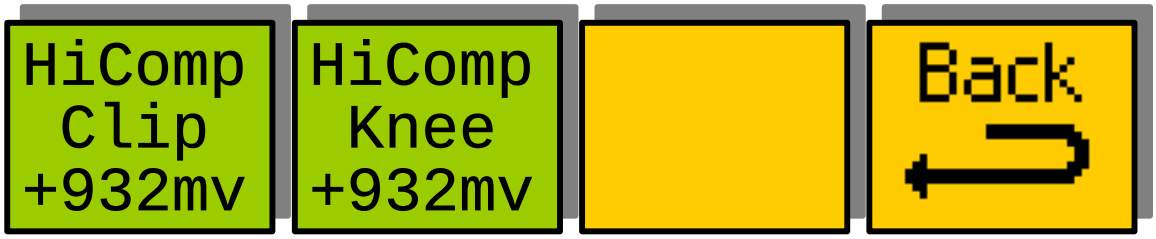
Menu 96-99: Composite Chroma Clip and Knee Menus (PAL)



Menu Num.	Heading	Automation	Function
96	Hi	none	Go to the Composite Chroma Hi Clip and Hi Knee Clipping menus (100-103)
97	Lo	none	Go to the Composite Chroma Lo Clip and Lo Knee Clipping menus (104-107)
98		none	Blank
99	BACK	none	Go to the Setup menus (80-83)

Menus 100-103: Composite Chroma High Clip and Knee settings (PAL)



Menu Num.	Heading	Automation	Function
100	High Clip Level	[8-511]	This indicates the High Clip point for the Composite Chroma Clipping.
101	High Knee Level	[8-511]	This indicates the High Knee point for the Composite Chroma Clipping. This can be set to give a “soft clip” from this knee point to the hard clip point.
102	Blank		
103	BACK	none	Go to the Composite Clip and Knee menus (96-99)

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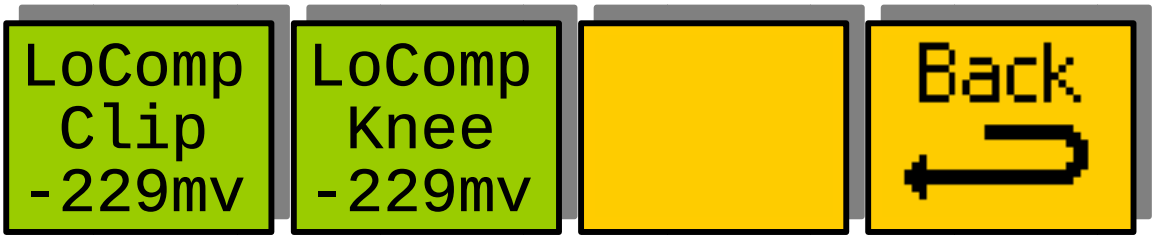
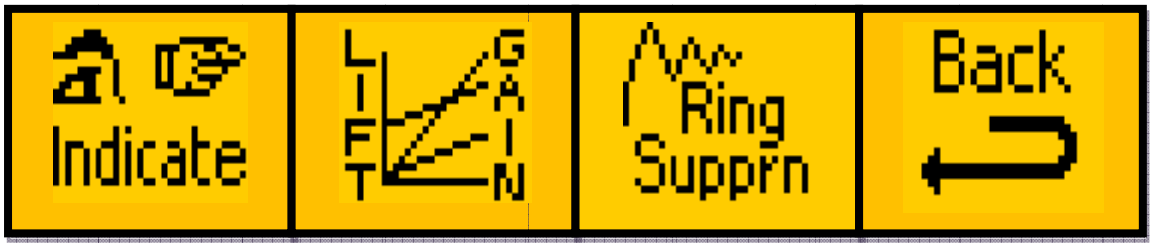
Menu 104-107: Composite Chroma Low Clip and Knee Settings (PAL)



Menu Num.	Heading	Automation	Function
104	Low Clip Level	[8→511]	This indicates the Low Clip point for the Composite Luma Clipping.
105	Low Knee Level	[8→511]	This indicates the Low Knee point for the Composite Luma Clipping. This can be set to give a “soft clip” from this knee point to the Low clip point.
106	Blank		
107	BACK	none	Go to the Composite Clip and Knee menus (96-99)

Menu 108-111: UTILITY MENUS - 1



Menu Num.	Heading	Automation	Function
108	LIFT/GAIN	none	Go to the Lift/Gain menus (80-83)
109	INDICATE	none	Go to the Composite Clip and Knee menus (132-135)
110	RING SUPPRESS	none	Go to the Ring Suppression menus (128-131).
111	BACK	none	Go to the Setup menus (8-11)

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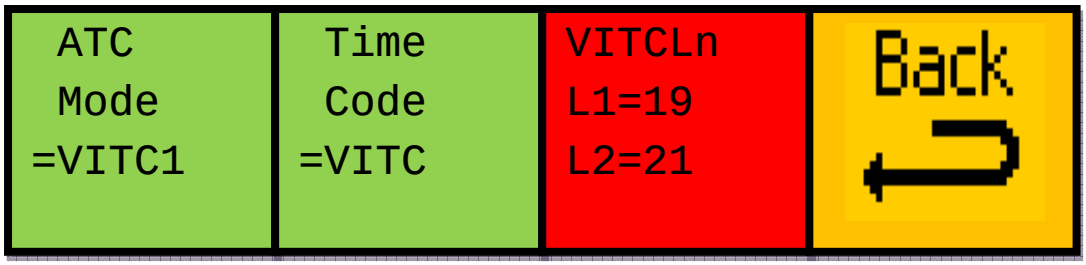
Menu 112-115: UTILITY MENUS - 2

Menu Num.	Heading	Automation	Function
112	LOG	none	Go to the Log menu (128-131)
113	POM	none	Go to the Power on Memory and Reset (144-147)
114	TIME CODES	none	Go to the Time Code Menus (116-119)
115	BACK	none	Go to the Setup menus (8-11)

Menu 116-119: TIME CODE MENUS



Menu Num.	Heading	Automation	Function
116	ATC Mode	LTC VITC1 VITC2 [0→2]	This selects the time code packet type for ATC time codes. ATC packets have source information which indicates the origin of the time code. LTC, VITC1 or VITC2.
117	Time Code	ATC LTC AUTO [0→2]	This selects ATC or LTC time codes. In AUTO mode the type of time code is selected automatically based on the time code received.
118	VITC LINE NUMBER (SD Only)	L1 [1→312] L2 [1→312]	This selects the two line numbers that contain the VITC. Only applicable in Standard Definition. PAL Field 1: Lines 19, 21 NTSC Field 1: Lines 14, 16
119	BACK	none	Go to the Composite Clip and Knee menus (112-115)

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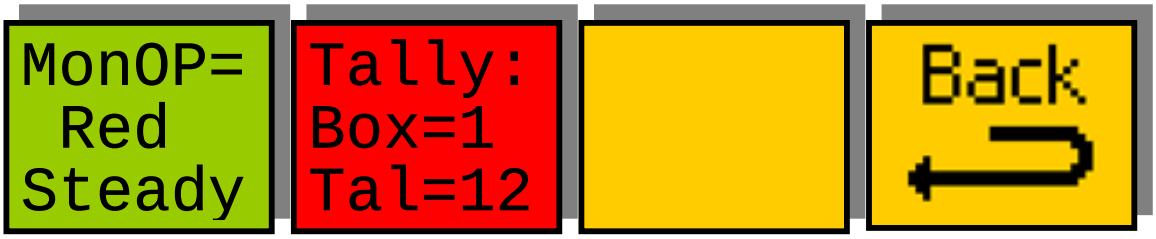
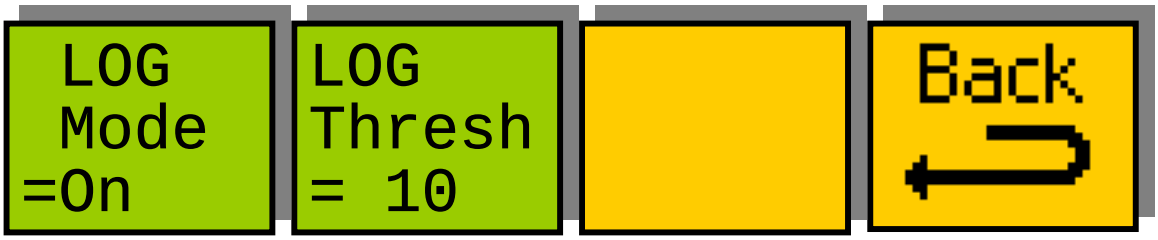
Menus 120-123: Out of Gamut Colour



Menu Num.	Heading	Automation	Function
120	MonOP	RedSteady GreenSteady BlueSteady WhiteSteady RedFlash GreenFlash BlueFlash WhiteFlash RawOut LegalOut [0→9]	This is the colour used to indicate the areas of the picture currently being processed by the legaliser. Raw Out, means this output is effectively configured as an acive input loopthrogh Legal Out means that this becomes the same as the main outputs.
121	Tally (Etherbox)	Level A = Box number. 0→16 Level B = Tally number. 11→13.	This configures a tally on the etherbox (FB-9E) to respond to the legaliser being “ON” or “OFF” Box=Set to Box number, set to zero is this is not to be used. Tal=Tally number on the etherbox. Set to either 11,12 or 13. See FB-9E manual.
122	Blank	none	
123	BACK	none	Go to the Utility - 1 menus (108-111)

Menus 124-127: Log mode menus



Menu Num.	Heading	Automation	Function
124	Log Mode	Off On [0→1]	This will switch on and off the Error Logging output on the RS232 port. This output can be used in

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			conjunction with the Eyeheight TimeCode software to display the errors and timecodes so that problem sections can easily be located
125	Log Threshold	[0→1023]	Specifies the absolute magnitude of allowable over/undershoot before the pixel is logged as severe in the PC logging application.
126		none	Blank
127	BACK	none	Go To the Utils menus (112-115)

Menus 128-131: COMPOSITE STANDARD MENUS

Menu Num.	Heading	Automation	Function
08	RING SUPPRESSION MODE	Off Auto Manual [0→2]	Off= No overshoot or undershoot suppression is employed Auto= The Overshoot and Undershoot suppresser automatically tracks the Settings for the High and Low clip on the Legaliser section. Manual= The user can set the High and low Ring suppression thresholds manually.
09	HIGH RING SUPPRESSION THRESHOLD	51% → 109% [512→1023]	When "Ring Suppression" Mode is in "Manual". This menu allows the user to set the upper limit at which no luma signal can go beyond, whether this is due to its absolute level, or its achievable level as an overshoot or undershoot on a 601 filter.
10	LOW RING SUPPRESSION THRESHOLD	-6%→ +51% [0→511]	When "Ring Suppression" Mode is in "Manual". This menu allows the user to set the lower limit at which no luma signal can go

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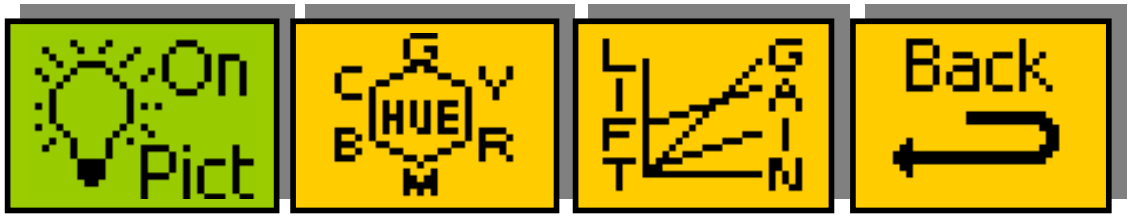
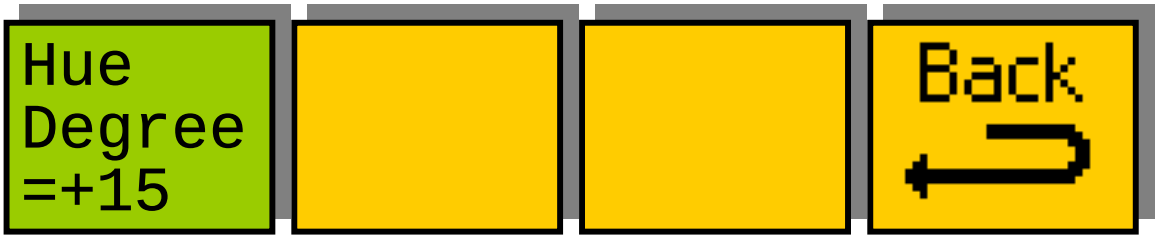
			below, whether this is due to its absolute level, or its achievable level as an overshoot or undershoot on a 601 filter.
131	BACK	none	Go To the Utils menus (108-111)

Menu 132-135): LIFT/GAIN MENUS



Menu Num.	Heading	Automation	Function
132	Lift, Gain, Hue and Black Control	On Off [0→1]	Active=Proc amp is processing, gain, hue and black controls are active Bypass= Unity Gain and no black offset.
133	HUE	none	Go To the Hue menus (136-139)
134	LIFT/GAIN	none	Go To the Luma, Chroma and Black menus (140-143)
135	BACK	none	Go to the Utility Menus - 1 (108-111)

Menus 136-139: Hue Control



Menu Num.	Heading	Automation	Function
136	Hue	-180 to +180 degrees [-511 →+512]	Hue Rotation value, in degrees.
137		none	Blank
138		none	Blank
139	BACK	none	Go to the Lift/Gain menus (132-135)

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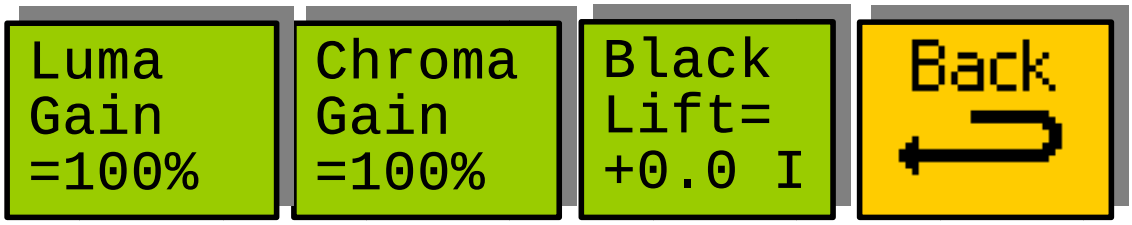
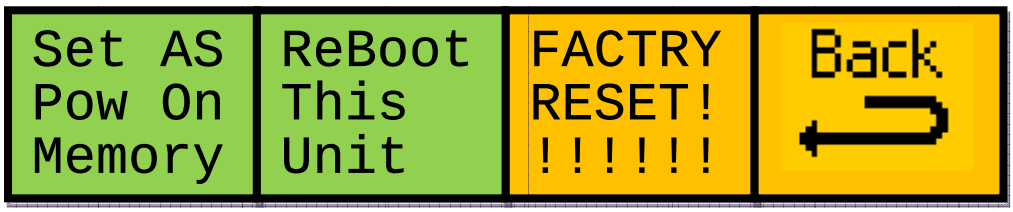
Menus 140-143: Processing amplifier status.



Menu Num.	Heading	Automation	Function
140	Luma Gain	0→200% [0→511]	Luminance Gain Adjustment
141	Chroma Gain	0→200% [0→511]	Chrominance Gain Adjustment
142	Black Level	+/- 20% Range [-255→255]	Black level adjustment
143	BACK	none	Go to the Lift/Gain menus (132-135)

Menus 144-147 Resets and Power On Memory.



Menu Num.	Heading	Function
144	Set as Power on Memory	Pressing this will set the current settings as the default settings when the unit is powered up.
145	Reboot this unit	This applies a warm restart to the unit. It is the software equivalent of recycling the power.
146	Factory Reset	Pressing this will take you to the Factory Reset Last Chance menu. (Go To Menu 44).
147	BACK	Go To the UTILITY MENUS – 2, 112-115

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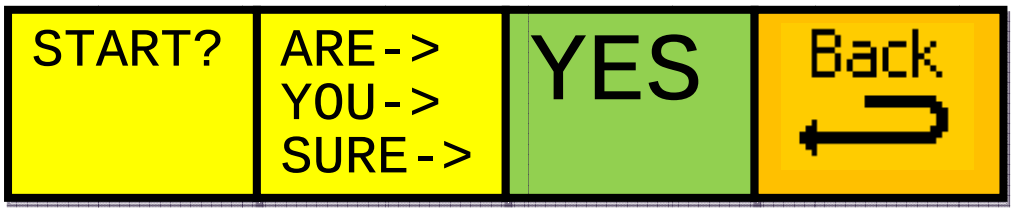
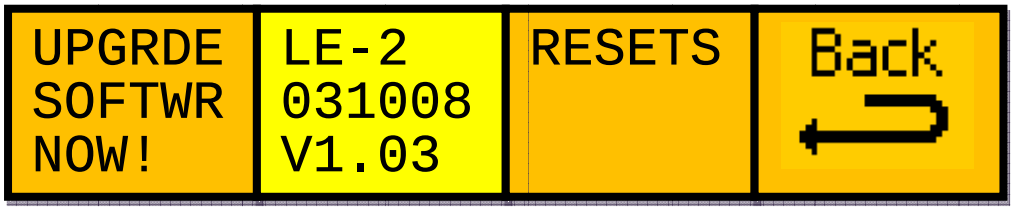
Menus 144-147 Factory Reset.



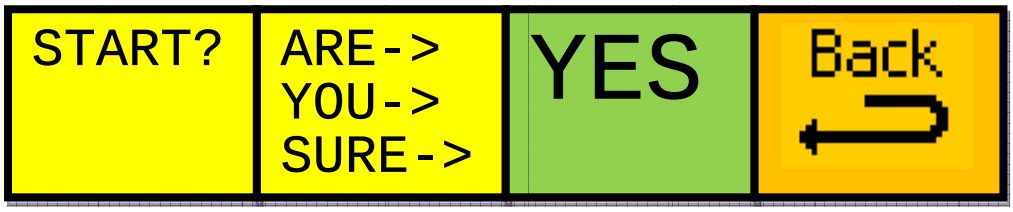
Menu Num.	Heading	Function
148	----	----
149	----	----
150	YES, I want to do a factory reset!	This will Start a factory Reset of the unit. This will Wipe ALL Logos and Settings that may have been previously set-up. Only do this if you are setting up from scratch, or there is a problem with your unit.
151	BACK	Go To the UTILITY MENUS – 2, 112-115

Menus 152-155 Upgrade and Resets.



Menu Num.	Heading	Function
152	Upgrade Software	Pressing this will take you to the Software Upgrade last chance menu. (Go To Menu 156).
153	Software Version	This window displays the software version.
154	Resets	Pressing this will take you to the Reset Options. (Go To Menu 144).
155	BACK	Go To the UTILITY MENUS – 2, 112-115

Menus 156-159 Software Upgrade.



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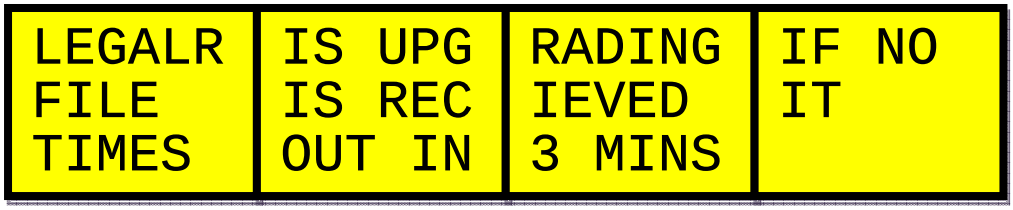
Menu Num.	Heading	Function
156	----	----
157	----	----
158	YES, I want to start a software upgrade	This will Start a software upgrade of the unit. You will need to follow the instructions in the etherbox (FB-9E) manual to correctly perform this procedure. This will Wipe ALL Logos and Settings that may have been previously set-up. The unit MUST be installed in an FB-9E to perform an upgrade.
159	BACK	Go To the UTILITY MENUS – 2, 112-115



Menu Num.	Heading	Function
160	----	This is a system message. If you accidentally press “Software Upgrade” then this message appears. If you have done this accidentally, simply WAIT 3 minutes and the system will return back to normal.
161	----	----
162	----	----
163	----	----

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6 Technical Appendix

6.1 GPI/Tally/RS232 technical information.

The Processor card has an RJ-45 connector with GPI, Tally and RS232 connections as shown below:

1	GPI-1	White/Orange
2	Not Used	Orange
3	GPI-2	White/Green
4	GND	Blue
5	RS232 TX	White/Blue
6	RS232 RX	Green
7	Not Used	White/Brown
8	Not Used	Brown

Table 1 GPI and RS232 pin-out on RJ-45.

6.1.1 GPI Inputs.

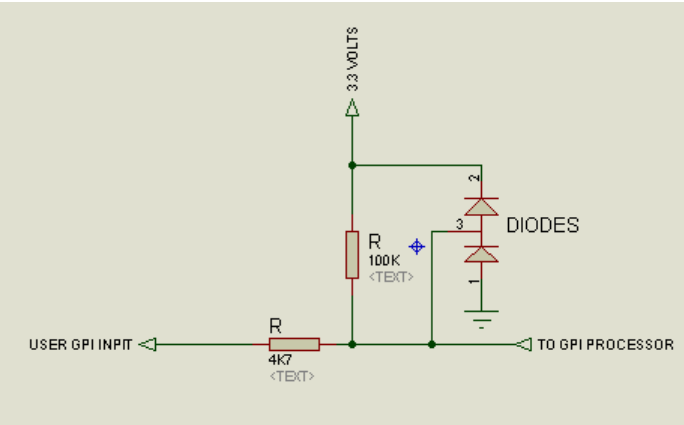

Figure 6-1 Typical GPI Input

6.1.2 GPI Splitter

The soft panel comms and GPI connections are on the same RJ45 connector. Eyeheight provide a GPI Splitter block which enables simultaneous use of the RJ45 for the comms and the RJ45 for the GPI's. The Splitter has the following pin-out which is also provided on a label on the splitter.

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Figure 6-2 GPI Splitter. Has 2 RJ-45 Sockets, one for the Comms and one for the GPI's

1	DO NOT CONNECT	White/Orange
2	DO NOT CONNECT	Orange
3	DO NOT CONNECT	White/Green
4	GND	Blue
5	RS232 TX	White/Blue
6	RS232 RX	Green
7	Not Used	White/Brown
8	Not Used	Brown

Table 2 GPI Splitter, comms (Soft Panel) connection.

1	GPI-1	White/Orange
2	GPI-2	Orange
3	DO NOT CONNECT	White/Green
4	GND	Blue
5	Not Used	White/Blue
6	DO NOT CONNECT	Green
7	Not Used	White/Brown
8	Not Used	Brown

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Table 3 GPI Splitter, GPI connection.

THE CONNECTIONS LABELLED "DO NOT CONNECT" *MUST* BE LEFT COMPLETELY UNCONNECTED.

GPI's are normally activated by a short to ground. The GPI has its own internal pull-up resistor. If the user is interfacing with logic then

- Vhigh = +12V>Vin>+3V
- Vlow = +0.3V>Vin>0V

6.1.3 RS232 Interface.

This loosely follows the pin convention of EIA-561 which is a standard for RS232 on an RJ45 cable. Only TX, RX and Signal ground (pin 4) are implemented. For the LE-2n the following RS232 parameters apply:

- 115Kbaud
- 8 Bits, no parity
- 1 Stop bit.

Eyeheight provide a Serial to USB lead with the LE-2n which is normally used for the soft panel control using this port.

eyeheight Unit 34 Park House Watford Business Park Greenhill Crescent Watford Herts GB WD18 8PH
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6.2 Technical Specification.

When in SDI mode:	
SDI Inputs (270Mbit, 800mV p-p±10% into 75ohms load)	1 Input (SDI) to SMPTE 259M.
SDI Outputs (270Mbit, 800mV p-p±10% into 75ohms load)	3 Outputs (SDI) to SMPTE 259M (F model has 1 of these outputs as Monitoring).
SDI cable equalisation	At least 200m of PSF 1/3. Return Loss better than 18dB, 5MHz - 270MHz.
When in HD-SDI mode:	
HD-SDI Inputs (1.485Gbit, 800mV p-p±10% into 75ohms load)	1 Input (HD-SDI) to SMPTE 292M.
HD-SDI Outputs (1.485Gbit, 800mV p-p±10% into 75ohms load)	2 Outputs (HD-SDI) to SMPTE 292M (F model has 1 of these outputs as Monitoring).
HD-SDI cable equalisation	At least 100m of Belden 1694A. Return Loss better than 15dB, 5MHz - 1485MHz.
Ancillary Data	Passes all ancillary date in vertical and horizontal blanking intervals without modification except for CRC recalculation.

Control System	Eyeheight I-Bus, 2 wire network. 3 off GPI inputs and RS232 control for preset recall.
Control Surfaces	Option of two eyeheight control surfaces. Integral front mounted control panel or remote FP-9, Flexi-Panel.
Chassis	Eyeheight Evolution chassis. Either a half width 1RU assembly for desk top or a full 1RU assembly for 19inch rack mounting (with RM-9).
Line Standards SDI	625 and 525
HD-SDI	1080 -23.98psf/24psf/23.98p/24p/ 25p/50i/29.97p/30p/59.94i/60i. 720p -23.98/24/25/29.97/30/50/59.94/60.
Delay	<10µs.
Power Supply	100-240V AC. Less than 50W power consumption.
Dimensions	Width 222.0mm Height 44.0mm Depth 392.0mm
Weight	<3kg (<4kg with rack mount, FF-6)
Temperature	<25°C ambient, <55°C internal.
Humidity	Recommend 40 to 55% Limits 20 to 80%.

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